

The Sportsman,
FARRIER and SHOEING-SMITHS.

New Guide.

being the substance of the Works of the late

Charles Vial De St^t Bell.

Professor of Medicine at the Veterinary College, or Hospital, for the Diseases of Horses

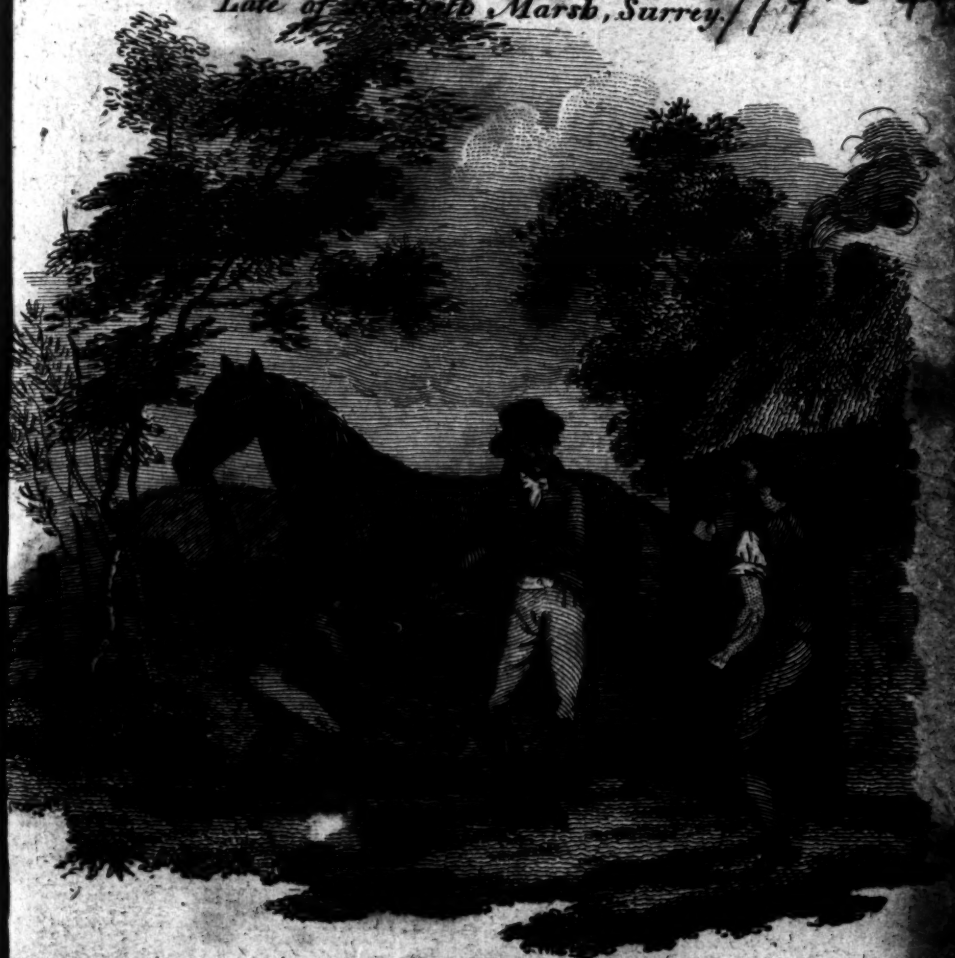
St. Pancras, London.

With Notes.

*which is prefixed a Short Account of his Life, & the Origin of the College
Also, an Appendix, containing valuable Extracts, from the most
(Approved Veterinary Writers.)*

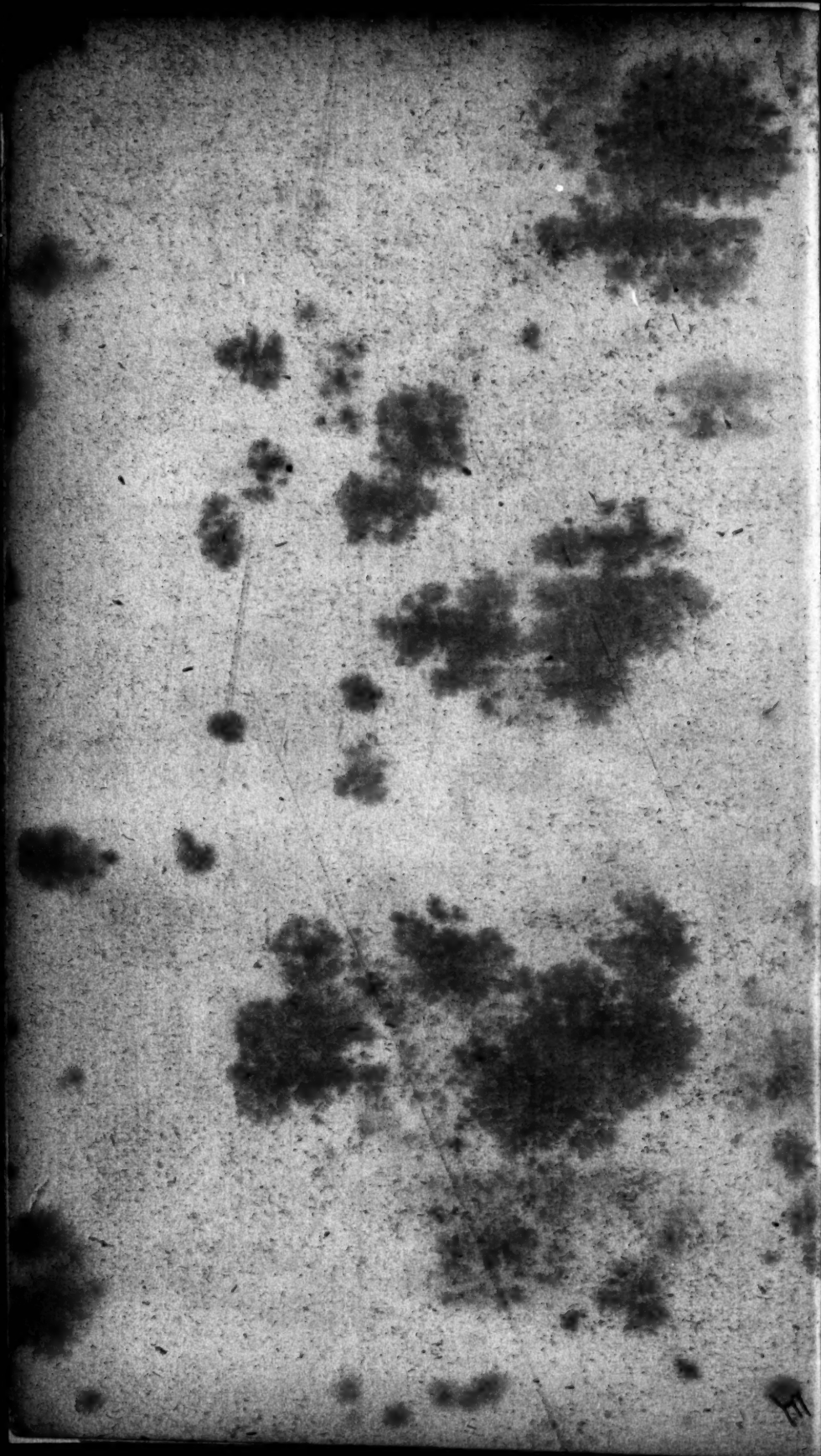
By John Lawrence.

Late of St. Albans, Marsh, Surrey. 779.c.4



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ADVERTISEMENT.

A Consideration of the peculiar circumstances under which the works of the late Professor St. Bel were published, occasioned me to pause some time on the subject of sending an abridgment of them into the world, however desirable such a thing might be, for the improvement of our farriers in veterinary science; and in particular for that most important branch of it, and in which they are so notoriously defective, the art of shoeing.

But upon more mature reflection, it appeared to me, that a low-priced abridgment, like the present, could by no means interfere with, or injure the sale of the original work. It is equally certain, that the bulk of those who wish for information upon veterinary subjects, will not, and indeed cannot, go to the price of two guineas for a book of instructions.

The case standing thus, I conceive I have performed a public duty in present-

ing my countrymen with a full and faithful, as well as cheap abridgment of the works of the most able and useful writer in his profession, which has appeared for many years; and I cannot help entertaining hopes, that I shall thereby contribute to the general diffusion of useful knowledge, and to the promotion of a more humane and gentle method of treating a noble animal of the highest desert, which has hitherto been invariably the sad victim of barbarous ignorance.

To render this little work still more useful to the farrier, I have added some extracts from the best writers on the subject of horses and shoeing, particularly Culley, Osmer, Clarke, and Lord Pembroke.

THE EDITOR,

Bury St. Edmunds,

Suffolk.

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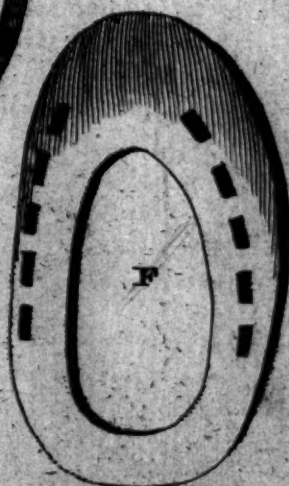
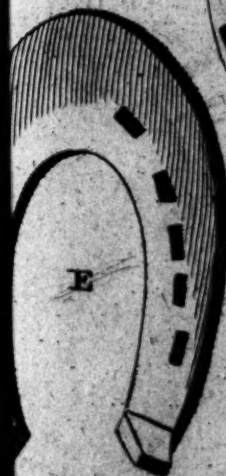
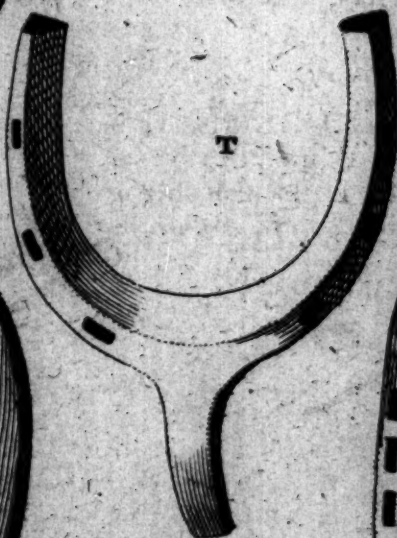
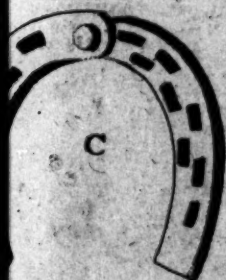
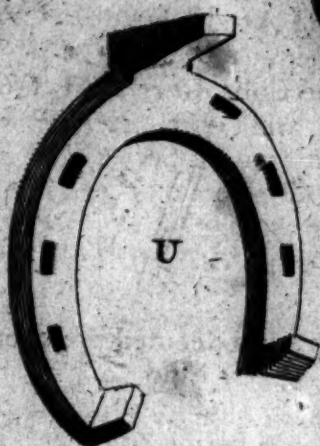
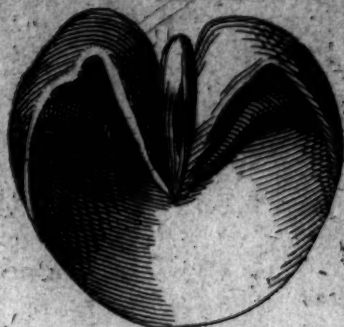
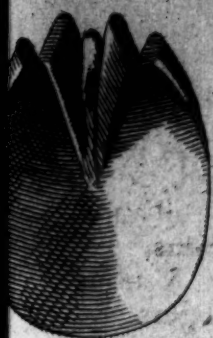
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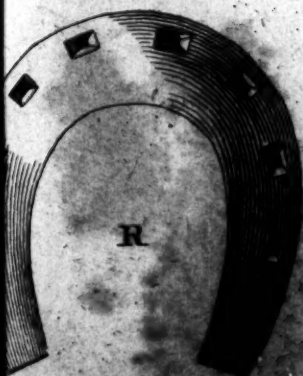
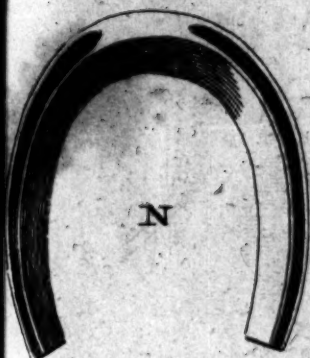
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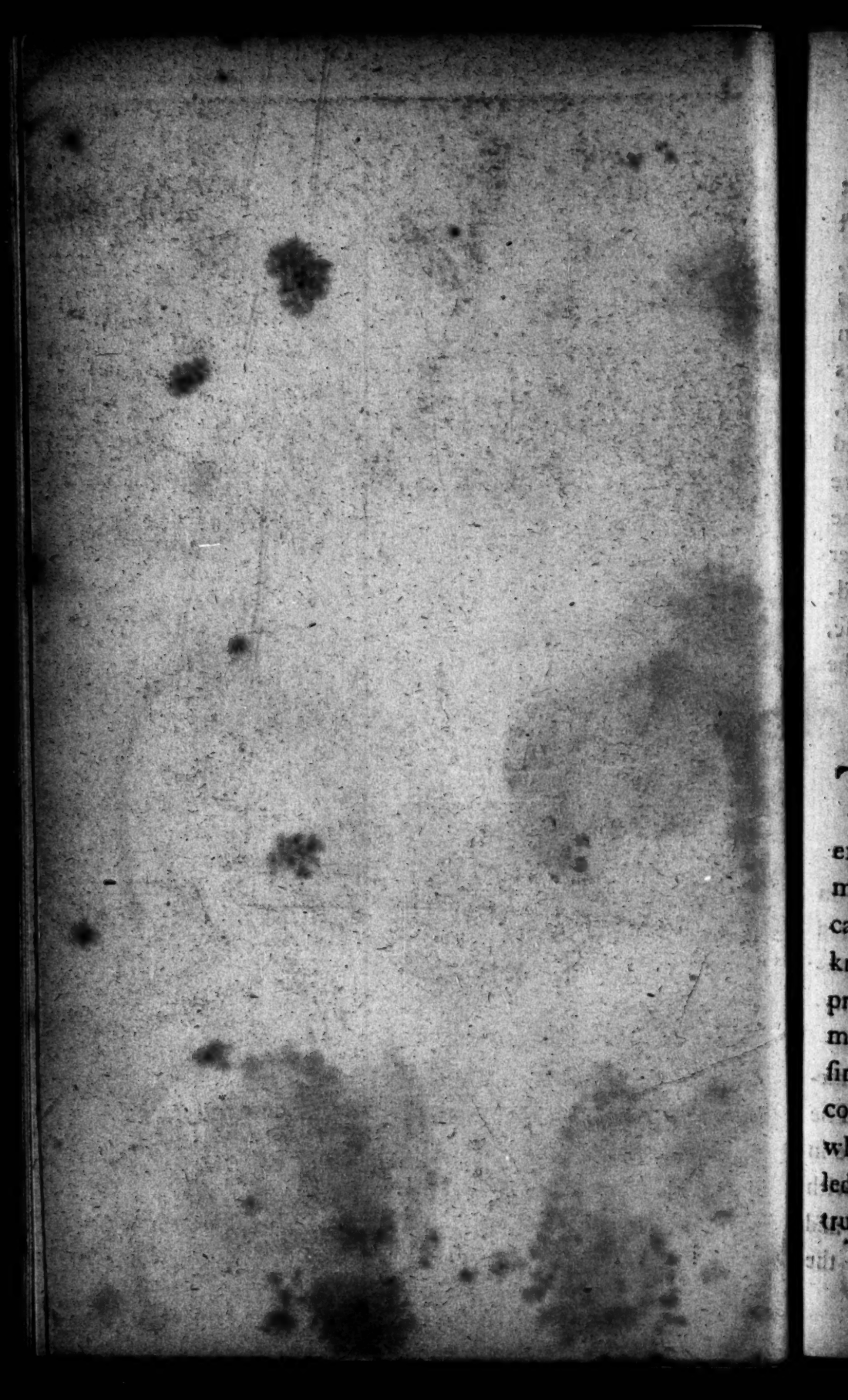
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For Fig. T. & U. see plate. 1.





THE
SPORTSMAN, FARRIER, AND
SHOEING-SMITH'S
NEW GUIDE.

AN
ESSAY
ON THE PROPERTIES
OF THE
FAMOUS RACE-HORSE ECLIPSE.

Originally inscribed by Permission to his Royal Highness the
Prince of Wales.

ADVERTISEMENT.

THIS Essay contains only some general ideas on the mechanism of the organs of progression, explanatory of the causes which conspire to augment the velocity of the gallop. These ideas are capable of being extended, and may conduce to the knowledge of the mechanical causes of the power of progressive motion, or translation, of every animated machine. The bones and muscles are simply an apparatus of cords, pulleys, cords, wedges, &c. the combination of which occasion greater or less speed. This knowledge is necessary both for those who would form a true judgment of the living horse, and for painters

and statuary. The painter or statuary ought never to stop at the surface of the parts, he must carry his enquiries into their internal conformation, where exists the cause of those motions he wishes to delineate. As it is obvious that the construction and direction of the bony and muscular parts within, determine the external form of the body, a table of the exact proportions of the best-formed racers would be of great utility. First, As a sure guide to the artist. Secondly, As a help in the choice of horses, and a warning to expect no greater exertions than nature allows. Thirdly, As a standard for the true conformation of the race-horse, and a rule to determine, at any time, whether the breed had improved or degenerated.

Death of Eclipse.

* **E**CLIPSE was seized with a violent cholic, in the morning of Feb. 25, 1789, and expired on the 27th, at seven in the evening, notwithstanding all possible assistance. He was aged twenty-six.

On opening the abdomen, or lower belly, immediately issued a quantity of bloody serum. The intestines, the mesentery, and the epiploon, were in a state of extreme inflammation, and covered with gangrenous spots; the glands much swelled, and the

the blood-vessels filled with thick black blood, without any serum. The stomach was quite empty, it's inward membrane inflamed, the spleen much obstructed, and the liver also, one lobe of which was in part putrefied. The pelvis was filled with purulent matter, and the membranes destroyed by suppuration. The bladder was empty, except of some matter from the ureters, which corroded the villous coat. The animal died from a defect in the functions of the veins, and a violent inflammation in the bowels. The bowels of the chest were but slightly inflamed. The heart weighed fourteen pounds. The skull was not opened, being intended for preservation. o

The Proportions of Eclipse, compared with the geometrical Table of Proportions, in Use at the Veterinary Schools of France.

The horses of different countries are generally distinguished by a conformation peculiar to each. The chief difference consists in the length and direction of the parts. The Spanish horse steps with dignity and cadence, whilst the English throws himself forward with strength and speed. This difference, which results from peculiar conformation, militates, in some respects, against the rules laid down in the geometrical table; and proves that

no common measures can apply generally, and without exception, to every species.

As each species, and even each individual, has it's own peculiar beauty, we cannot pretend to establish any general rule of beauty for the horse. Were a man to collect the various beauties of individuals, it might indeed serve as a model for the painter or statuary, but would be of no use to direct him in the choice of a horse. The following observations do not relate to that external appearance which is commonly styled handsome, but to that true mechanical construction, the result of which is exertion and speed. Eclipse was never esteemed handsome, but in make and shape he was nearly perfect, and speedy in proportion.

The Table.

* First, The horse should measure three heads in height, from his foretop to the ground. Eclipse measured more by half a head.

Secondly, The neck should be one head in length. That of Eclipse was a head and a half.

Thirdly, The height and length of the body should be equal. Eclipse's height measured more than his length by one-tenth.

Fourthly, A perpendicular line falling from the stifle should touch the toe. This line, in Eclipse,
+ touched

touched the ground at the distance of half a head before the toe.

Fifthly, The distance from the elbow to the bend of the knee, should be the same as from the bend of the knee to the ground. In Eclipse, the former was two parts of a head longer than the latter.

These rules may serve in some measure to explain the mechanism of the different species of horses, as it is only in examining their proportions, when just, and in ascertaining their exactness, that we can conceive any hopes of apprehending the intentions of nature.

On the geometrical Proportions of Eclipse.

In order to investigate the mechanical causes which operate in the progressive motion of animal bodies; observe their effects, and determine on the difference of speed in different animals, it is necessary to have a knowledge of the anatomy and mechanism of the animal œconomy, and of the laws of motion.

Since even nature has in general subjected herself to the established laws of mechanics, it is evident, that in the examination and illustration of her works, we ought to study and govern ourselves by those laws. It is only by disputing the point, as it were, with her, that we constrain her to explain herself upon an infinite variety of important parti-

culars, on which ignorance alone hath hitherto presumed to decide at random. It is not by mere superficial guesses, but by constant study and reflection only, that we can be enabled to establish new principles, upon subjects hitherto unexplored.

The reflections which I am about to hazard concerning the geometrical proportions of Eclipse, will perhaps offend some of the established prejudices of the turf; but I hope at least to offer some truths worthy of attention.

Speed is not only unequal in different animals, but even in individuals of the same class. For example, in the dray-horse and the race-horse. They are however individuals of the same species, the number of parts the same in each, differing only in bulk, extent, and direction; whence result different degrees of power, in the levers which they form. Thus we are not to conclude that the weight of the horse is the only cause of his slowness; it proceeds chiefly from the mechanical arrangement of the parts which relate to motion.

The extent of the action of any part, is the produce of it's length and direction; the force of the action, that of the direction, rather than the intrinsic power of the muscles. The muscular power is either increased or diminished, in proportion as the muscles are situated near or distant from the center or axis of the parts which they are destined to move. By way of illustration, let us suppose the

the shoulder-blade of a horse to be long and very oblique, so as to form with the humerus an angle of eighty degrees; then the muscles which move the shoulder forward, backward, upward, and downward, being remote from the axis or center of motion, will produce the flexion and extension of this part more advantageously than if nearer that center; so that if the shoulder inclines backward forty degrees, it must advance forty, to find the perpendicular; if, on the contrary, this part, in a state of inaction, approaches nearer the center, and is naturally shorter, the circle it describes, and the purchase, will be less, whatever may be the power of the muscles. On the good or bad construction of the shoulder progression materially depends, as it's motion determines that of the inferior parts. A long and oblique shoulder is the indication of speed; because, in proportion to the length and obliquity of that part, the farther the arms of the lever will be extended, and the greater will be the portion of the circle which it will describe.

To explain my meaning respecting the dimensions of Eclipse, I shall endeavour to apply some mechanical principles to the action of the hock, that being a part materially conducive to progression in a horse. The common opinion, that the hock, to be strong, ought to be wide and flat, is just, and confirmed by dissection and anatomical experience.

The structure of the hock presents an angular spring, formed by the tibia and the calcaneum, the power of which is in proportion to it's shortness. At the union of the two branches of this spring originates the fulcrum, which rests upon the ground. These branches are extended by the flexor muscles; the spring is also compressed by the weight of the body; the extensor muscles resist, but yield at the instant of flexion; in their turn, they re-possess themselves of the power, by which they produce in the spring of the hock an extension equal to the compression it had sustained: for the extension or the spring must always be in the same direction with the compressing power, and with a force equal to the degree of compression. For example, in a race-horse galloping at full speed, we see the hind-legs placed obliquely forward under the body, and even beyond the center of gravity; and from the repetition of alternate flexions and extensions proceeds the celerity of the gallop. In horses, on the contrary, whose hind-feet do not sufficiently approach the center of gravity, and whose spring is perpendicularly compressed, the extension still takes place in the same direction and proportion. This appears distinctly in the short gallop of the manage-horse. In fine, the force of action in the hock, will be in proportion with the length of the hinder branch of the spring, formed by the calcaneum; of course, the wider the hock the

the better, provided the whole limb be well formed.

The foregoing principles, it will be perceived, have for their object the length, breadth, and direction of the solid parts, which compose the skeleton of the machine, whose symmetry and harmonious arrangement, favouring the power of the muscles, is the cause of the freedom and extent of it's motions; and although it be impossible to inspect the internal parts of the living animal, yet the eye of the anatomist is able to form a judgment, sufficiently exact, of the power and extent of action in the bones and muscles, by their external appearance.

It is however necessary to remark, that I have no intention of establishing the beauty of race-horses by the rule and compass. All ideas of a beauty of caprice or convention must be banished, and conceptions formed of a beauty founded on the natural and mechanical excellence of the animal, relative to the uses for which he is designed, as in the present instance for speed.

The speed of Eclipse being superior to that of all other horses, I have made choice of him, as a rule to guide me in the reflections I propose to offer upon the subject.

Remarks continued.

The head divided in twenty-two equal parts is the common measure for every part of the body of a horse. If the head appear too long, or too short, the height of the body must be taken from the top of the withers to the ground. This height being divided into three equal parts, one of these three parts subdivided into twenty-two equal parts, will give a just geometrical length, such as the head would have given, had it been rightly proportioned.

Height and Length of Eclipse.

Height from the withers to the ground 66 inches.

Height from the top of the rump to the ground - - - 67

Length of the body, taken from the most prominent part of the breast to the extremity of the buttocks - 69

Length of the Bones of the Legs.

Fore-Legs.	Inches.
Shoulder-blade - -	18
Humerus, or arm - -	12
Cubitus, or fore-arm - -	16
Canon, or thank - -	12
Pastern, coronet, and foot - -	18
Hind-	

Hind-Legs.	Inches.
Os-ilion - - -	12
Femur, or thigh - - -	15
Tibia - - -	19
Shank, or leg - - -	14
Pastern, coronet, and foot - - -	9

We may suppose that the legs of Eclipse, in their flexion in the gallop, described each a circle of three hundred and sixty degrees; and consequently the extent of the action of each leg was the same in the extension. To this must be added the force of action, without which a horse cannot even walk. This muscular and merely mechanical force can only be computed by experiment; and well organized as Eclipse was, as to his muscles, and the length and direction of his legs, we may venture to assert, that free of all weight, and galloping at full speed, he could cover an extent of twenty-five feet at each compleat action of the gallop; that he could repeat this twice and one-third in each second; consequently that, doing his utmost, he could run near four miles in six minutes and two seconds.

The excellence of the make of Eclipse may fairly be inferred from his superior speed; for this speed could result only from an harmonious combination in the organs of progression. Let us now suppose these same organs defective in their proportions,

portions, and enquire what would be the consequence.

Defect in the Proportions of the Head.

The body, neck, and head of a horse, may be considered as forming a large lever, the fulcrum of which is in the fore-legs. The head being joined to the anterior arm of this lever, formed by the neck, must necessarily counterpoise some part of the posterior arm, formed by the body. If the head be too short, it detracts from the equipoise, and requires more exertion from the hinder parts; the fore-hand may be lighter, but it will be at the expence of progression. The defect is greater from a too long and heavy head, because it will outweigh that portion of the hind-quarter to which it only ought to be a balance; the fore-legs being over-weighted, will clear themselves from the ground with more difficulty, will continue raised a shorter time, and will cover less ground in their advance.

Defect in the Neck.

Faults in the neck generally arise from defects in the head; it is not common to see a short head with a long neck, or the contrary. If the neck and head be both too short, it is a double fault; the same

same if the neck be too long ; for the head will naturally weigh heavier in proportion to it's distance from the fulcrum, or rest of the lever. It's length should be nearly one-third of the height of the body. The neck ought to measure one head and half, from the nape to the withers.

Defect of Proportion in the Height from the Withers to the Ground.

Animals designed by nature for speed have more extent in their hind than their fore parts ; it is therefore no defect in a race-horse, if the withers lie below an horizontal line drawn from the rump, provided the difference does not exceed two inches ; but if it exceeds this, the hind-legs will impel the body with too much force upon the fore-legs, and retard their action. This fault would be increased, if the head and neck were too long.

If the withers were higher than the rump, (an uncommon fault,) the effect would be contrary, but equally tending to retard progression ; since the hind-legs would be obliged to overcome the resistance of the body in an oblique direction upwards. Whether the horse be too high or too low before, the rider may afford him the necessary equilibrium, by bringing the weight of his own body before or behind the center of gravity of the horse's body.

It

It is not only necessary to vary the weight which horses are to carry in order to equalize their speed, it is also necessary to make a just distribution of the weight upon each separate horse. The rider should likewise study well all his motions and actions, the least of which may occasion a difference of a quarter of a second of time in a race, and a race is frequently won or lost by half a head.

Defect in Length of Body.

The length of Eclipse, taken from the extremity of the buttocks to the chest, exceeded his height by nearly a tenth. If the body were longer, the loins would be too flexible and weak; their vigour depends upon their shortness; for the vertebræ of the loins are thus closer, and united by shorter ligaments; the muscles which move them are also shorter, thicker, and stronger. This form, unpleasant in the manage, is essential to the race-horse.

The firmness of the loins of English horses, the little freedom of their shoulders, the custom of riding fast, and the impossibility of sustaining properly that motion, without rising in the saddle, are the grounds of English horsemanship; the principles of which I mean to examine in a future work.

Shortness

Shortness of the Body.

In this case the spine is naturally stiff and inflexible. The motion of the loins is so much confined, that the back and loins appear to compose but one piece. From the approach of the hinder to the fore extremities, the limbs have less power of extension both backward and forward, and there is a loss of the power of progression.

Natural Direction of the Back and Loins.

The back-bone should describe an horizontal line from the withers to the rump; the vertebrae of the spine should unite by surfaces vertically cut; the whole is then compleat; and the pressure of the hind-legs against so well-constructed a column, instantly produces an entire removal of the whole frame in a forward direction.

Back bending inwards.

In this case a horse is called hollow, or saddle-backed, which is a mark of weakness. The muscles labour even to support the bowels of the lower belly; the rump is unsteady in action, and the pressure of the hinder extremities still tends to bend the spine. This faulty conformation must also tend to impede action,

action, since the fore-part of the animal is but slowly and feebly affected by the action of the hinder.

Back bending outwards.

This defect is styled ass-backed; and not only brings the four legs nearer to each other, but gives them an oblique direction, which diminishes stability, and abridges the speed of the horse, because the hind-leg is obliged to leave the ground as soon as it has attained it's perpendicular; whereas the space which the legs describe should extend from the oblique forward, through the perpendicular, to the oblique backward. Where the four extremities are too distant from each other, the horse is defective in speed, as the hind-legs affect their extension only from the perpendiculars.

Defect from the Size of the Body.

The body of Eclipse measured through, from the middle of the back to the middle of the belly, was one head and four parts in depth; but this would be too much in a young race-horse. But Eclipse was twenty-six years old when this measure was taken; of course more corpulent than in his prime. The largeness of the carcase not only increases the total weight, but impedes the action of the hind-legs in their endeavour to attain the central point.

Defect

Defect from too light Carcase.

The primary cause of the goodness of any horse must be a just organization of the viscera, with a corresponding good conformation of the outward parts; the result will be an exact and regular performance of all the necessary functions. For example, if the organs of digestion are weak, nutrition will be imperfect, and the horse incapable of sustaining violent exertions, which strain and try his strength and wind. This would result from a belly that is too thin and confined in the flanks, containing intestines of too inconsiderable a bulk. The body of a race-horse should, I think, be in the proportion of about twenty parts of a head.

Defect in the Proportion of the Thorax, or Chest.

Freedom and length in breathing, or what we call a good wind, is as essential to a racer as a good form. In a narrow chest, where the viscera are straightened for room, the blood, increased in rapidity by exercise, will pass through the lungs with great difficulty, the breath will become short and quick, the animal will lose his wind, he will become leg-weary, and even suffocation may ensue.

Another defect also attends a narrow chest; the fore-legs are brought too near each other, which renders the horse infirm and wavering; besides, a
horse

horse thus constructed is liable to the pulmonaria. The first symptoms of this disorder are leanness, copious sweats, and continual scouring. A too capacious chest, by increasing the weight of the body, overcharges the fore-legs; but of the two defects I conceive the wide chest to be the least, especially if the horse be well shaped. Eclipse was singularly well made in his chest.

It is nevertheless possible to turn a narrow-chested horse to account, by moderating his work in proportion; by such method his wind may be gradually improved, but always in subjection to his primitive constitution. If the plan of moderated exercise should turn out capable of improving respiration to the degree of sustaining speed for the space of a second, even in that short space a race-horse may be rendered useful to his owner.

Of the Croup, or Rump.

An examination of the ilion bones confirmed me in my opinion that the croup in Eclipse was too large. The extent of the os pubis and ischion occasioned him to go too wide behind. His hind-feet, instead of being parallel with his fore-feet, stood outward. This defect, which occasioned a wavering in the croup in his gallop, together with other small defects, were over-ruled by his great muscular powers. A much greater fault in a racer

is when the croup is too narrow, and the muscles which communicate with the loins and extremities thin, and consequently weak.

Fore-Legs.—Of the Shoulder and Arm.

In Eclipse the shoulder was too much loaded; but if too spare, the muscles will be weak, and the motions of the shoulder confined. The proportion of the arm is commonly determined by that of the shoulder-blade. These two parts, forming together the sides of an angle, more or less open, give to the muscles which move them a greater or less power, in proportion as they move them farther from, or bring them nearer to, the axis of motion.

The Fore-Arm, or Radius.

The strength and action of the fore-arm are in proportion to it's breadth, which is occasioned by the bulk of it's muscles. The extent of it's action is the produce of it's length; for, supposing it to be freely jointed, it is evident that a radius sixteen inches long will, in progression, describe a portion of a larger circle than one that is shorter. The length of the fore-arm is of great avail in respect to speed. Eclipse was well proportioned in that part.

The

The Leg, or Shank.

In proportion as the fore-arm is long, the leg, or shank, will be short. The shortness and breadth of this part secures it's strength: if too thick, it is strong, but clumsy; if long and thin, weak. It ought to be wide, that is, flat, because the force of the muscles will increase in proportion as the sinew is distant from the center of motion. In this part Eclipse was a pattern.

The Pastern, Coronet, and Foot.

These bending in the same direction, and describing one line from the fetlock to the ground, may be considered as forming together one piece. A column possesses all it's possible strength, when placed perpendicularly; it's stability is impaired in proportion as it deviates. But speed, as well as stability and strength, is intended by nature in the structure of those parts of the horse; and the faculty of speed could not be compassed but by the aid of those angles, the number and extension of which determine it. This angular disposition of the pasterns not only assists progression, but also secures the bowels of the chest and lower belly from the shocks they would have received, had the percussion on the ground taken place perpendicularly. The angles

angles are so many springs, lessening the force of re-action. This bending of the pasterns, however, may be too great, according to the use we propose to make of the horse.

Too long a pastern lessens the size of the leg. Horses so constructed are admired in the manage for their ease and pliancy; but such elegance would be a fault in a race-horse, in which we require strength and solidity in those parts, in order to sustain the weight of the body, and resist more strongly the re-action from the ground. If the pastern be too short and upright, it diminishes speed, and renders the animal liable to fall at every step. Eclipse having been foundered many years previous to his death, the havoc made by the disorder so disfigured and changed the direction both of the coronet and pastern, that it was not possible to determine exactly the proportions of those parts.

Of the Hind-Legs.—The Thigh.

Eclipse was remarkable for length in his hinder parts. The thigh formed with the os ilion a considerable angle, whence followed a great extent of motion. The length of the tibia gave a most beautiful proportion to the leg; and the hock, from its size, and perfect make, must have produced the
greatest

greatest possible degree of extension. The leg, pastern, coronet, and foot, fully corresponded.

Of the Perpendicular.

Nature has established the perpendicular position, as necessary to the support of the animal body. It not only insures the stability of the structure, by the exact arrangement of the bones one upon another, and by an equal distribution of the weight upon each, but it also favours progression, by maintaining a perfect equilibrium in the projection of the mass. When the legs are in action, each one receiving only its due share of weight, and always in the perpendicular line, transfers its burden to its neighbour with ease; but if the perpendicular is disturbed, if the weight press unequally, the harmony between the legs will be destroyed, and motion retarded.

Perpendicular Lines in Eclipse.—Fore-Legs.

The first line falls perpendicularly from the articulation of the arm with the shoulder to the toe of the fore-foot.

The second, from the elbow to the heel, dividing longitudinally the fore-arm, knee, and leg.

The third, from a little above the knee, dividing it

it into equal parts, and descends along the front surface of the leg, pastern, coronet, and foot, equally dividing them; also

The fourth, from the center to the chest, equally, to the ground.

Hind-Legs.

The fifth line falls from the stifle to the ground, at the distance of half a head before the toe.

The sixth, from the point of the hock along the tendons, and dividing the leg and foot longitudinally, touches the ground at the opening of the frog.

The seventh, from the center of the buttocks to the ground.

The eighth, from the withers to the ground, touching the point of the elbow.

The ninth is the center of gravity of the whole body, falling from the middle of the back, through the body, to the central point of the four-legged figure.

The particular and relative position of the legs of Eclipse, were sufficiently perfect to bear the application of the perpendicular lines above described. I will now enquire into the inconveniences that would result from the interruption of the perpendicular in each particular line.

Fore-

Fore-Legs.—Perpendicular interrupted in the first Line.

If the foot be placed before the first perpendicular line, the leg will stand obliquely forward, it will cover less ground, it's stay upon the ground will be abridged, and, being only on the heel, will in a manner repel the whole mass, and impede progression; the fore-legs will come to the ground nearly in the direction of those of a horse on the descent.

If the obliquity of the leg be behind the line, the animal will be ever on the point of falling, because the foot, by it's position, will sustain too large a share of weight; the bending the leg will be difficult, and the paces shortened.

Interrupted in the second Line,

From the leg standing before or behind it. The inconveniences are the same as last described. If this defect originate at the knee, the horse is bow-legged. In either case he is unfit for the turf.

Third Line.

When the lower extremity of the limb exceeds the line, the bony parts are ill united, and do not bear exactly on each other; the weight bearing unequally on the foot, the tread is less firm, and the steps irregular. The line is usually disturbed only between the fetlock and the ground, and the
foot

foot turned either inward or outward. These faults necessarily detract more or less from progression.

Fourth Line.

This interruption can only happen by the knees bending inwards, or by the feet being placed too near each other, from the outward inclination of the fore-arms. In the former case, the legs move out of the line of the body, and produce a lateral motion, contrary to progression; the same, but inversely, in the latter. When the feet of the horse stand too close, stability is impaired, and the balance hindered in action.

Hind-Legs.—Interruption in the fifth Line.

The toe of Eclipse was distant half a head from the line which falls from the stifle to the ground. If the feet advance nearer to this line, the hocks must bend in proportion; they will bear too much weight; the legs, being too upright, will not cover much ground; the body, in action, will be rather elevated than advanced; of course speed will be curtailed.

On the contrary, there must also be a loss of speed relative to the remainder of the spaces which the legs ought to have embraced, when the hind-feet stand too far behind the line. The hocks will be nearly strait; the hind-legs will not be thrown

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sufficiently forward in action; their extension will be partial, and take place only from the perpendicular backward.

In a good-shaped racer, the extent and freedom of the hind-quarters convey the hind-feet much beyond the center of gravity; and the observation will be found to hold true of all animals designed by nature for speed.

Interruption in the sixth Line.

The same as in the fifth.

In the seventh Line.

Whether this fault exist in the bones of the hock not bearing equally, or in an ill disposition of the articulation of the fetlock, the legs lose more or less of their power from the tread being out of the line; progression is impeded of course.

In the eighth Line.

May arise, first, from the great fulness of the quarters, and the closeness of the hind-feet; an uncommon fault in a well-bred nag. Secondly, by the thigh inclining outward, which brings the hocks together, and turns the feet out. Thirdly, the interruption may commence at the hock, and the joint turn inward, from an ill arrangement of the bones. In either case, the leg will not move in the line, the rump will waver, and all the lateral motions

motions will be so much loss to progression. Whatever may be the strength of the loins, or the fore-quarters, an exact perpendicular of the hind-legs is of the first importance, since the slightest interruption therein must proportionally detract from speed. The case is not exactly the same with regard to the fore-legs; the office of which is rather to sustain, than convey the body forward.

The *ninth line* only determines the proper situation of the withers.

The *tenth* is only the mark of the center of gravity of the whole body.

In judging of the true perpendicular of a horse, there is no necessity to have the rule, compass, and hippometer always in hand. If the horse be placed on a perfect level, a good anatomist will have acquired sufficient skill to determine off-hand the good or bad position of the legs, by viewing them in all directions; that is to say, sideways, in front, and behind.

It will doubtless be objected to me, that all race-horses are not cast in the same mould, or shaped exactly alike, and, of consequence, are not all to be judged indiscriminately by the same rules. I answer, that the difference imagined between two horses of nearly equal speed, deceives only those who judge merely from the external surface of the body; a judge of it's internal structure will discover and recognize parts which, on a superficial

superficial view, appear entirely dissimilar. It must be acknowledged, however, that a great disparity in the natural construction of individuals may sometimes weaken, although it can never totally destroy, the force of these observations.

Doubtless, of two horses of the same size, one may be speedier than the other, from a superior closeness and strength in the texture of the organs; but this exception affects not my general rules. These rules may have great use in the choice of a racer, and may save a sporting man much trouble and anxiety, by enabling him to form a just judgment of a young horse. I intreat the owners of studs to examine well these observations, and to apply them even to their yearling colts.

Six complete Actions of the Gallop.

The gallop consists of a repetition of bounds or leaps, more or less high and extended, in proportion to the strength and *action* of the animal.

In the common gallop are three times. If the horse begin his gallop to the right, the left hind-foot beats the first time, the right hind-foot and left fore-foot beat the second time together, and the right fore-foot beats the third.

In the gallop of four times, the feet strike the ground in the same order as in walking. Galloping on the right, the left hind-foot beats the first time,

time, the right hind-foot beats the second, the left fore-foot beats the third, and the right fore-foot beats the fourth. This gallop is regular, but little adapted to speed. The gallop at two times is faster than that at three, or four; the legs follow as in the trot; so that the two sounds are given by the left hind-foot and right fore-foot striking the ground together, and by the right hind-foot and left fore-foot all striking the ground together.

END OF THE ESSAY ON ECLIPSE.

LECTURES
ON
THE ELEMENTS OF FARRIERY,
THE
ART OF HORSE-SHOING,
AND
THE DISEASES OF THE FOOT.

Printed in 1793, and designed chiefly for the Use of the
College.

ADVERTISEMENT.

THE author informs his readers, that being deeply impressed with a sense of the pernicious practice which at present obtains among farriers in the art of shoeing, he thought it a duty to apply himself, first of all, to that important point. That the new principles of the horse-shoe, which he was about to publish, were entirely his own, and not brought from France, or ever before practised in any country, or described by any author; but that they fully accorded with those laid down by the Earl of Pembroke, Mr. Clarke, M. La Fosse, and M. Bourlegat; on whose works he bestows great commendations.

ON THE
ART OF FERRIERY, OR FARRIERY.*

LECTURE I.

CONTAINING THE EXTERNAL AND INTERNAL
DESCRIPTION OF THE FOOT.

SINCE among ancient authors we find only a cursory mention of the horse-shoe, and that neither they nor the moderns have contributed much to our information on this head; we have no other resource than in our own enquiries, by means of which it is our business to obtain a thorough knowledge of the external form, and internal organization, of that part which forms the base of the whole animal machine, called the foot.

Nature has rendered elastic certain organs, the office of which is to move parts of themselves immoveable; she has also, no less wisely, given solidity to others, which are destined to support the weight of the whole fabric.

The fibres which compose the foot are intimately united, and form, by their assemblage, different

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* The word *ferriery*, (whence, by corruption, *farrriery*,) signifies strictly the art of working in iron, from the Latin *ferrum*, iron.

ferent plans, the particular arrangements of which determine the density, form, and use, of the parts which they compose. Those which descend from the coronet to the lower circumference of the hoof, form that which is called the wall or crust of the foot; others, with the appearance of flattened, thin plates, one above another, compose the sole; and the fibres of which the frog is formed, follow in some degree the direction of that part.

To form an idea of the different degrees of density observable in the hoof, (which we may compare to the human nail,) we must divide it perpendicularly from the coronet to the toe; which will shew that the internal surface of the wall, or crust, is lined by a laminated substance, in which blood-vessels branch out infinitely. These vessels, probably becoming serous and lymphatic vessels, penetrate into the substance of the hoof, convey to it its nourishment, and form that highly irritable part called the quick. Farther we no longer distinguish blood-vessels in the substance of the crust, but discover a porous substance, more compact than the former, from whence exudes a moisture preserving a degree of constant pliancy in the part. The next object is a substance absolutely senseless, and seemingly dead; more or less hard, and destined to protect the sensible parts within from the obstruction of hard bodies, on which the animal may tread.

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The hoof, like the nail, is nourished and grows from the top downwards, and from within outwardly; so that the internal pushes forward the middle part, and takes it's place; the latter becomes a dead and horny substance, perishing in course. The shape of the foot exhibits the segment of an oval, opened at the back, and nearly round in front; divided into toe, or anterior part; quarters, or lateral parts; heels, or posterior parts; and sole and frog, or inferior parts.

By observing the shape of a horse, and comparing the size of the leg and body, we may easily perceive whether the hoof be in proportion, or too large, too long, or too short, too little, or too narrow.

If the hoof be too large or wide, it will indeed increase the stability of the fabric, while at rest; but this partial advantage is an evil in an animal, because the mass and weight of the supporter overburdens the muscles of the extremity, and retards progress. Besides, the excessive bulk of the foot is a proof of the relaxation of it's fibres; the diameters of the vessels are increased, the porosities are multiplied, the fluids are too abundant, and the foot is of course spongy and tender. On the other hand, too small a foot renders the leg less stable and firm; and from the too close union, and the too great tension of the fibres, the nourishing vessels are contracted and obliterated; hence that dryness of the

part, which renders the horn brittle, and liable to split. In a too long and narrow foot, the heels are contracted, and the weight of the body thrown upon them; the length of the toe retards progression, and renders the animal unsafe.

In low heels and flat feet, the nourishment is entirely carried to the toe, at the expence of the other parts. This fault is increased, if the horse be too long in the fetlock joints, because it brings him entirely on his heels.

When the foot is too short, the heels are generally too high: this double defect renders the base too narrow, and the leg too upright; on which account the horse is unsafe. If the pastern is also too short, which we call short-jointed, the defect is farther increased. But it is necessary, as well as the general defects of the foot, to examine separately it's constituent parts, in order to discover whether they completely support their destined weight.

The direction of the exterior surface of the hoof, or crust, should be moderately inclined, the surface itself smooth and even, and free from wrinkles, which always prove some derangement of the part. The hoof should be of a proportionate thickness. In the fore-feet, it always ought to be thickest at the toe; on the contrary, behind, the heels and quarters are generally thicker than the toe.

toe. The quarters should be equal in height, and neither very much contracted, nor very open. The inner quarter is always weakest.

The heels should neither be very high, nor low, nor very thin. When very high, they throw the body forward, and produce the same effect as too short foot and joints. On the contrary, in low heels, the frog is generally too large, and thence, bearing too much weight, the horse is often lamed.

It is of consequence to distinguish whether the heels are naturally too low, or have been rendered so by bad shoeing. The same observation may be made of thin, flexible, and tender heels.

The frog, called by the French the fork, is placed between the heels, of which it is a continuation, and has the form of a V; its substance is spongy, and its size should be in proportion to the foot. As too large a frog is subject to bruises, on the other hand, when the part is too small, and does not reach the level of the heels, it does not receive its destined weight, and the heels are deprived of a part which contributes to maintain their natural extension.

The sole covers the whole surface of the foot, excepting the frog; its form should be moderately hollow; too great a concavity indicates a foot contracted and dry. A sole that is full and level with the quarters, denotes a soft and relaxed foot;

but it happens in common that the hoof is dried, and the sole soft and thin. This happens from the too free use of the farrier's buttress. This appears from the observation, that few horses are foaled with a natural propensity to flat feet; some excepted, which are bred in low marshy lands. The science of farriery, however, is competent to amend this natural defect, which the bad practice of the present day only serves to increase. The sole sometimes descends below the level of the quarters, and presents a convex surface; a form of all others the most defective, and which is occasioned by some accidental cause.

Of the exterior parts which compose the foot, it remains to speak of the arches, or binders, which are situated between the heel and frog. They are formed by the continuation of the fibres of the heels, which turn towards each other, and advancing to the extremity of the frog, where they meet, form an acute angle; and acting by mutual resistance from within, outwardly oppose the contraction of the heels.

But it is necessary for a farrier to investigate beyond the horny case of the foot, and to acquaint himself well with the nature of the parts which it contains. This will not only be a sure guide to him in shoeing, but will also discover to him the secret cause of many a lameness which has puzzled the ignorant practitioner.

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The foot is composed of hard and soft parts; we shall begin with the former.

The bone of the foot is placed in the interior part of the hoof; it is spongy, in form like a half-moon, and has three different surfaces, and two edges, or rims. The upper surface is subdivided into two smaller ones, which receive the coronet bone. The anterior one is round, corresponding to the external form of the toe, which surface is covered with the laminated surface, of which hereafter. The under surface is concave, and in part lined by the aponeurosis of the flexor muscle of the foot, and by the fleshy sole.

There are two holes through which vessels pass, distributing themselves into the substance of the bone; there are besides a multitude of porosities dispersed through the whole extent of the surface. The edges are two in number; the upper one corresponding with the coronet, and presenting three eminences, in the middle, and on each side. The extensor muscles are attached to the first; the other two terminate laterally the edge just mentioned. The lower and sharp edge corresponds to the outline of the toe. The articular or shuttle-bone is situated at the lower part of the articulation of the coronet, and bone of the foot. It presents two small surfaces, which form an articulation with the bone of the coronet. The irregularities observable

servable on the other parts of the surface, give occasion to the insertion of the ligaments. Over the two upper extremities of the bone of the foot, are two cartilages, which extend from the insertion of the tendon of the extensor muscle, to the hinder part of the heels. Their shape is nearly semilunar, and they adhere strongly to the bone on which they lie. They have several holes, which serve as passages to vessels. These cartilages are sometimes ossified in old horses.

A multitude of laminated substances, or membranous plates, pretty strong, line on the one part the internal surface of the crust, of which they are an appendage, and cover, on the other part, the whole anterior surface of the bone of the foot. These lamina, or plates, being double, interweave with one another so as to form a perfect union between the hoof and that bone.

The fleshy sole, which covers part of the interior surface of the bone of the foot, is itself covered by the horny sole. It adheres, at it's circumference, to the plates, by means of fibres and vessels. The hinder part of the surface of the bone of the foot is covered by the aponeurosis of the flexor muscles, in which it is strongly implanted; the aponeurosis is covered] by the fleshy frog, which is a soft spongy substance, shaped like the horny frog.

The vessels of the internal part of the foot, are
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the arteries, veins, nerves, and lymphatics; also the secretory and excretory vessels, distributed round the articulation,

The artery of the leg, divided into two branches behind the pastern, penetrates on each side into the interior of the foot, and these branches are distributed through all it's parts. The veins follow the same course.

Two branches of the nerve distribute themselves equally on both sides. The lymphatic vessels are not very perceptible. The glands lie between the articulation and cartilages.

We shall now proceed to take a review of the use of the parts of which we have been speaking, beginning with the external. The wall, the sole, and the frog, form together a horny box. The wall is evidently designed to support the greatest part of the weight of the body; which ought to rest on every point of it's lower circumference. In a state of inaction, the heels more directly support that weight, in proportion to the obliquity of the line from the fetlock to the ground.

In action, on the contrary, the toe more particularly receives the weight, at the moment of pressing the ground; the weight, however, bears in more instances upon the heels, than on any other point.

The frog bears only a slight part of the general burden; it's chief use is to serve as a cushion, or guard,

guard, to the tendon of the flexor muscle of the foot, to which it acts as both a sort of lever and defence, communicating to it every effect of reaction.

The sole, in it's natural strength, may without risk receive a slight share of the weight, particularly in the part next the wall; but it's hollow form proves, that it was the intention of nature to keep it as distant from the ground as possible, in order to preserve it from too great a pressure, which would infallibly injure the fleshy sole; the more so, as this last lies between it and the bone of the foot; that is to say, between two bodies exceeding hard.

The bone of the foot constitutes the most solid part of the work. It is the base, and receives the whole burden, which it afterwards distributes.

The plates, or laminated substance, and fleshy frog, have already been described. The arteries convey life to the parts, with the blood; and the veins take charge of the residue of that blood, which they bring back into the current of circulation. The nerves distribute sensation.

The glands secrete a humour designed to lubricate the articulated parts, and to prevent, by that means, the drying and inflammation which would otherwise be unavoidably occasioned by the action of friction, to which those parts are exposed.

LECTURE II.

OF THE POSITION OF THE FOOT ON THE GROUND, AND OF THE CONCAVE FORM OF THE LOWER SURFACE OF THE FOOT, CONSIDERED IN RESPECT TO SHOEING.

OUR first business is now, by some fixed rule, founded in nature, to determine what is the best position of the foot on the ground, which will enable us to form a just idea of it's several defects. In order to this it is not sufficient to consider the foot alone, we must extend our enquiry to the very origin of the limb; because it often happens, that the faulty position of the foot is the natural consequence of the bad conformation of some other part of the leg.

In a well-formed leg and foot, considered in a state of inaction, we shall perceive, first, that a perpendicular (as has been before observed) falling from the point of the shoulder to the ground, will touch the hoof exactly at the toe. In many instances, however, as the foot is thrown into wrong positions, by the false direction of the leg, we are to take care not to attribute to the foot a fault which is not imputable to it.

Secondly,

Secondly, A perpendicular falling from the upper part of the knee to the ground, in front, will divide the foot into two equal parts, in it's passage through the center of the coronet and sole. If this line should fall either on the inward or outward quarter of the hoof, the foot would evidently be awry. In this case the lateral parts of the foot become unequal, either in height or direction, and the toes are turned either outwards or inwards.

The toe may be turned outward by the bad conformation of the foot alone. When the fault is in the foot, it proceeds from the inward quarter being too low, in which case it is over-burdened by the weight of the body, and it's growth prevented; whilst the outward quarter, bearing less than it's just weight, grows and spreads at the expence of the other. This fault may be remedied by shoeing, as will be shewn.

The toe may also turn outward from the following defects. First, When the horse is narrow-chested, and the elbow, pressing against the ribs, directs the extremity outwards. Secondly, When the knees are turned inwards. Thirdly, When the articulation of the fetlock is bent inwards; both which produce the same effect with the former. In these three cases we may in some degree relieve the inward quarter, but we must not attempt to restore the position of the foot entirely,

as advised by a certain author, because we should thereby strain the ligaments of the articulations, no doubt originally faulty, in which case art can offer no safe remedy.

The opposite causes to the above produce contrary defects. First, When the elbow is too much detached from the body, the whole leg and foot will be directed inward. Secondly, When the knees are bent outward; and, Thirdly, When the fetlock is turned outward. These three cases admit only a partial remedy.

When one of the quarters is more forcibly contracted than the other, (no uncommon case,) the natural position of the foot is destroyed. This contraction is occasioned by the upper surface of the shoe being made concave, which cavity confines the quarters as in a vice. To understand this, let it be remembered, that action and re-action are equal; and that although the hoof is pared away, to fit the hollowness of the shoe, it will grow within the cavity; the resistance it will meet with will be the same as if the shoe compressed the hoof, and the effect equal. The practice also of cutting away the binders of the sole, and the inner part of the heels, has the same effect. The quarters being compressed by the shoe, and the heels losing that resistance which nature had opposed to their contraction, draw close together; or else the weaker yields, and the foot becomes awry. These cases

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are sometimes remedied by good shoeing. It is impossible to lay down any general rules in theory concerning the vicious position of the foot, occasioned by false quarters, operations ill performed, the destruction of toe and heel, and too great height of the latter, or length of the former, since practice only can enable one to determine and apply the necessary relief.

We come now to the inferior surface, or cavity of the foot, considered in respect to shoeing. The horse, we know, in his wild state requires no shoes; but being taken to use, and compelled to labour upon hard roads, it becomes necessary to secure his feet with iron shoes. The question is, what ought to be the shape of the shoe, and whether that at present in general use be conformable to nature. It is clear that nature, ever wise, and consistent in her designs, has destined the sole of the horse's foot (which is always more or less concave) to answer two purposes: the one is, to make the tread of the foot bear equally on all points of it's circumference, and at the same time to protect the sole, by it's distance from the ground, together with the internal parts of the foot: the other purpose is, to increase the strength and stability of the foot upon the ground. The irregularity, and the several prominences, in the lower surface of the feet of all animals, enable them to attach themselves firmly to the different surfaces on which they tread,
and

and serve as *fulcra*, or points of rest, adapted to their respective motions. This we perceive both in the claw, the cloven foot, and the entire hoof. Accordingly, nature has given to the horse a vaulted or concave foot, bearing with incredible force upon the lower edge, and capable of maintaining, by means of that cavity, an almost inseparable union with the soil. The ancients, to whom the iron shoe was unknown, valued highly the natural hoof for it's obvious utility, and directed their attention to the preservation of it's natural form, no less than of it's consistence. For example, let us observe a horse treading upon a moderately soft surface, and we shall perceive that at every step the foot leaves in the ground an impression produced by the sharp edge of the wall, and by the frog, while the sole moulds in bas-relief; so that the lower surface unites itself with the ground, forming a species of articulation; and from this circumstance results a most firm point of bearing, rendering it impossible for the foot to slip, or be displaced, while the leg is employed in forwarding the body. It is true, on hard ground, an equal effect cannot be produced; but the sharp edge of the wall, and particularly the toe, will nevertheless fix the foot much more firmly to the ground, than if the interior surface were a proper plane. However simple and obvious this reasoning may appear, we still offer farther proof, upon

upon a principle which appears to us incontrovertible. The leg of a horse, when in action, describes a portion of a circle proportioned to the length and freedom of it's motions. In the advance of the leg, the moment the foot touches the ground, it describes an oblique line from the shoulder to the ground. This obliquity is lessened by the advance of the body, until the leg attains a vertical direction, when the horse has completed half his action. The leg has thus far been only employed in bearing the weight of the body; but in continuing the action, it begins to project or determine the body forward; which action it continues until it describe another oblique line, equal to the former, but in an opposite direction, inclining forward from the ground to the shoulder, and forming with the first line an angle more or less open. This is the complete action of the horse; and the foot, firmly fixed on the ground, does not quit it's tread until the whole action is finished. This, however, can be applied only to a well-formed foot. Let us now suppose a flat foot, that is, a foot with the cavity filled up. The points of rest on the ground, at the moment of progression, in such a foot, will be far less than in that of the concave foot; it will slip, for want of sufficient hold. As to the convex foot, it is obvious the convex surface of the sole destroys entirely the solid bearing of the foot on the ground; such a foot is
constantly

constantly in a state of vacillation, and would unavoidably slip back before the leg could possibly attain it's last degree of extension. These principles are demonstrated by a comparison of the feet of all quadrupeds; which, however diversified, agree in one general principle or mode by which they effect their progression. The heel in all serves as a point of rest while standing; and the opposite side of the foot, or toe, is provided with a sharp angular point, or points, by affixing which to the ground, they are able to command any degree of speed. Even man, when running, at each projection of the body, inflects his toes to the ground, and by the firmness of that pressure obtains the last degree of purchase; as may be proved by attempting to run, at the same time keeping the toes from the ground. This principle is fully exemplified in the cat, the dog, &c. The horse and zebra, in their natural state, although they have not an angle visible without, like the cat and dog, and though their foot is guarded by a circular defence, yet tread with equal firmness, by means of an angular edge. To compare in detail the feet of the horse and the dog, it will appear they are formed exactly upon the same principles, as to progression; the ball of the dog's foot corresponds with the heel and frog of the horse; and the five points of the claws, standing in a semicircle, correspond with the lower edge of the hoof, which may be considered as a succession

succession of points. The former rests on the ball of the foot, the latter on the heels and frog. In progression, the point of rest advances to the toe in the horse, and to the central claw in the dog. Were we to add a small plate of iron to the point of the claw in the dog, and thereby widen it's natural termination, there can be no doubt that the dog would be unable to extend his limbs to the term of their natural action.

In farther illustration of these principles, let us see how much strength is lost by large draft-horses, when drawing a heavy carriage up an inclined road. Their flat or convex feet slide back at every step, before the leg has been able fully to exert itself. For example, let us suppose the extent of the possible action of the leg to comprehend twenty-five degrees, the foot being naturally, that is, solidly and firmly, fixed on the ground: but if the firmness of the tread be impaired by it's flatness, it will be obliged to quit the ground at the twenty-second degree; and suppose a degree lost by the slipping of the feet, this will make a difference of four degrees. But should the bottom of the foot be convex, it will quit the ground at the twentieth degree; and if two degrees are added for the slipping backwards, it will make the loss of seven degrees in the total action of the leg.

Let us next proceed to lay down a sure and certain principle, such as shall enable us to determine the

the proper shape the shoe ought to have, when applied to a foot which has never been yet shod. No one will venture to deny, that in the affair of shoeing reason directs us to a close imitation of nature. If we apply a concave, a flat, or a convex shoe, the consequence will be precisely the same as has been shewn to result from concave, flat, or convex feet. Suppose a foot well formed, and properly concave, a second flat, and a third convex; the convex and flat foot will be rendered still more inconvenient by shoes with a similar surface, because the iron, presenting a harder and smoother surface than the hoof, will be still more liable to slip. On this account it is that we have proposed a shoe concave in it's lower surface, because it represents the natural shape of the foot, and therefore ought to be applied to all good feet.

The exceptions to this general rule arise from the flat and convex foot; nevertheless these may cease in time, seeing such defects in the feet are always the consequence of bad shoeing, foundering, or other accidents; for no horses, not even those bred in marshy, low lands, are foaled with such imperfections. Nature has given us the most convincing proofs that she has sufficiently provided for the stability of the foundations of this admirable machine.

But it is not in the concave form only that the shoe here proposed must differ from the shoe in use

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among farriers at this day. It's breadth should be considerably less than that of the shoe in common use. It is totally unnecessary to cover any part of the sole, when care is taken to preserve it's natural hardness. The breadth of the shoe at the heels should be one-half of it's breath at the toe. It's thickness should decrease gradually from the toe, so as to be reduced one-half at the extremity of the heels. The nail-holes of the fore-shoes, every smith knows, should be at the toe and quarters, because the crust in the fore-feet is strongest at the toe. In the hind-feet the reverse is to be observed, because in them the toe is commonly weaker than the heels and quarters. It is impossible to lay down any general rules for disposing these holes in bad feet; it must be the business of the farrier to fix the nails in those parts of the wall where the horn is most sound and firm. Farriers generally multiply the nail-holes too much, which brings the nails too close together, splinters the horn, and at length destroys the wall.

I would recommend the following number for good feet, viz. for race-horses six, three on each side; for saddle-horses seven, four on the outside, and three within, the quarter on this side being weakest; the same number for coach-horses of the middling size; for large horses, four on each side; and for cart-horses, five on the out, and five on the inside.

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The weight of the shoe is also of the utmost importance; and it is matter of astonishment to see horses with shoes weighing five pounds each, or a burden of twenty pounds of iron attached to their feet. By such an additional weight fixed to the extremity of the leg, the muscles are compelled to greater exertion, the ligaments are stretched, and the articulations continually fatigued. Besides, the shoe, by it's weight, forces out the nails, and so entirely breaks the texture of the wall, or crust. Why, then, we may ask, do the farriers, who are daily witnesses of these mischiefs, continue to commit the blunders by which they are occasioned? The answer is obvious; because he who is uneducated, and unable to comprehend principles, can neither profit by his own experience, nor abandon the paths of prejudice and custom.

The weight which we propose for shoes of different kinds, is nearly as follows:

	lb.	oz.
1. For heavy cart-horses -	2	12
2. For lighter ditto - -	1	12
3. For largest coach-horses	1	12
4. For smaller ditto - -	1	4
5. For saddle do. of any height	1	2 to 10 oz. only.
6. For race-horses - -	0	5 to 4 oz.

By reducing the breadth of these shoes, their thickness may be increased without making an

addition to their weight. Great attention should be paid to the quality of the iron, since it's hardness will allow of a still greater reduction in the size and weight of the shoe.

Besides the common shoe, for sound feet, there are also others, the shapes of which are adapted to the different derangements occasioned by accident or disease. For instance, the covered, flat, convex, or patten shoe; the shoe for all feet, simple, double, and hinged; the shoe without nails; the half-moon, Turkish, slipper-shoe, &c.

Of the ox, mule, and afs, we shall say but little. The fore-shoe for a mule is nearly similar to that which the farriers call a bar-shoe; very wide and large, particularly at the toe, where it sometimes projects upwards of four inches beyond the hoof. This excess is given on account of the narrowness of the mule's feet. The hind-shoe is open at heel like a horse-shoe, but lengthened at the toe, as before. The French call the former *planche*, the latter *florentine*.

The afs is shod in like manner, excepting that the fore-shoe is not closed at the heels, and that it's edges do not project so much beyond the hoof. Hind-feet the same.

The ox is shod with a flat plate of iron, having five or six nail-holes on the outer edge; at the toe is a projection of four or five inches, which, passing in the cleft of the foot, is bent over the hoof, to

keep

keep the shoe in it's place. In France they sometimes use eight shoes, one under each nail; or four, one under each external nail; sometimes only two, one under the external nail of each fore-foot.

LECTURE III.

ON PARING THE HOOF—ACCIDENTS FROM IT'S
UNSKILFUL PERFORMANCE—ON SHOEING
GOOD, FLAT, AND CONVEX FEET.

WHEN a colt is brought to the farrier to be shod, his first business should be to examine the conformation of the young animal, particularly the direction of the legs; to observe whether the fore-legs are perfectly vertical, or whether they incline backward or forward; whether the pastern is in just proportion, or whether too long or too short; whether the toes are turned inwards or outwards; he should endeavour to discover in what part of the limb the fault (if any) exists.

He ought next to examine the foot, and ascertain it's proportions; whether it's surface is free from defect, whether strong or weak, hard or soft;

whether the quarters are equal, the heels high or low, slender or thick; whether the frog is of the proper size, and sound; whether the sole is strong, and to observe it's degree of concavity.

If the leg and foot are perfect, the farrier should begin paring the foot, by merely cutting off whatever breaks the level of the inferior surface of the wall; but he is not to meddle with the sole, the binder, or the frog. This is the proper place to convince him of the necessity of preserving to these parts their solidity, by laying before him the numberless accidents attending their destruction. The drift of the operation of farriery, is to supply an additional strength to the foot, and to render it capable of resisting the hardest bodies; but if, while we are making this addition, we destroy with the buttress those parts which nature has formed with the very same intent, we counteract that intent, and contribute to destroy the organ, by predisposing it to a multitude of ailments, of which I am about to speak.

By thinning the sole too much, and going beyond it's dead horny part, we destroy it's organization: for it is not necessary to fetch blood to produce this evil; it is enough only to touch that substance which receives the glutinous juice through the numberless pores with which the sole abounds. The result is a real wound, obvious to a person acquainted with the laws of the animal œconomy, but

but of which the common farrier can form no idea. The following comparison will strike the most ignorant. If we take from the upper surface of the bark of a tree, we do it no great injury; nevertheless we rob it of it's natural covering: if we penetrate farther, we produce a real wound; we shall perceive a moisture exuding from the part, which the air will soon absorb; and the surface of the bark drying up, a scar will be produced, which will not be effaced, until nature, in the course of time, has renewed the bark. What should we think of a gardener, who, in order to protect a tree from injury, should strip it of it's bark, and inclose it in an artificial covering? Such precisely is the conduct of the common farrier, who destroys the whole external surface of the foot, in order to fix on the shoe.

The inconveniences of overparing the sole are not the same in all horses: among such as have hard, narrow, and very concave feet, (as among bred horses,) the drying up the sole increases the cavity to that degree, that it compresses the fleshy sole, which occasions a constant painful lameness, and which the ignorant farrier increases every time of shoeing.

In a foot naturally large and relaxed, the sole being too much thinned, yields to the afflux of humours, loses it's concavity, and becomes flat, and even sometimes convex. The sole also, being

imprudently thinned, is liable to be bruised, as well by the shoe itself, as by hard bodies upon the ground. It is therefore of the utmost importance, that the farrier take nothing from the sole with his buttress, but those lamina or scales which are really dead, and almost fall off of themselves.

The frog being intended to bear the weight of the body, for that reason alone ought to be preserved entire. When it appears too bulky, as in fat or flat feet, which have generally very low heels, it is better to supply this defect by a slight increase of thickness in the heels of the shoe, than to strip the frog of it's horny covering. The heels are thus raised to a level with the feet; and the weight equally distributed to every point of the circumference.

By cutting the frog to the quick, the part is irritated and inflamed; a discharge of sharp humours ensues, which corrodes both the frog and the heels, and sometimes rises even to the folds of the pastern, and occasions the running thrush; an affection which would be as rare as it is now common, if the frog was never pared. Nothing should be ever cut away from the frog, but those dead and proud parts which naturally detach themselves by the laws of growth and re-production.

The heels should be pared according to their strength, height, or depression, and also in proportion to the length or shortness of the pastern; a
very

very material observation, if we remember that these parts support three quarters of the weight of the whole mass.

The binders, those parts so very essential to the support of the heels, should be preserved with the most scrupulous care; the buttress should never touch them, except in some very extraordinary cases, when they grow too fast; it then becomes necessary to cut them level with the heels, but always flat, never obliquely, or inwards.

In the present ruinous practice of farriery, we shall hardly find one horse, the binders of the feet of which are not destroyed. Nay, the farrier, to shew his expertness at mischief, by one stroke of the buttress, makes a division between those parts and the heels, at the place where the point of bearing lies; and not satisfied even with that, he farther separates, with the same tool, the frog from the heel. These last operations are finishing strokes; a farrier, who should be awkward at these, would not be reputed a good workman.

It is next to impossible to persuade men, not only ignorant of the first principles of their art, but prejudiced in an extreme degree to old customs, which are in direct opposition to the laws of nature; but the methods they constantly take to open the heels, are exactly those which they ought to use, if it was their intent to contract them. This truth will, however, not be generally acknow-

ledged, nor a salutary reform ensue, until enlightened students shall be dispersed throughout the country.

To return to practice.—When about to shoe a good foot, which has been shod several times, we are to take from the wall nothing more than the old horn, which is not sufficiently solid to receive the shoe, and only to cleanse the sole and frog from the loose and scaly parts. To this foot the shoe, N, is to be applied, without forgetting the good old observation, that the shoe is to be fitted to the foot, not the foot to the shoe. The greatest care should be taken to make the shoe correspond exactly with the outline of the foot. This fundamental principle is generally neglected, as may be seen by turning to B, plate I, which represents the natural form of a colt's foot, and comparing it with fig. A, which shews a foot ruined by bad shoeing.

The shoe being adjusted to the foot, without pressing the sole, should admit between it and that part just a sufficient interval for the introduction of the pricker; a greater space might introduce large gravel or stones, liable to bruise the sole, and occasion sores. The shoe being fast, there ought to be as little as possible to rasp, and that only from the shoe to the rivets, but never above them; because by rasping the whole surface of the hoof you not only injure it's substance, but dispose it to dry; and
should

should the rasp, from carelessness, touch ever so slightly the origin of the nail, near the coronet, where the part is exceedingly thin, the consequence is a small wound or crevice, which ends in a sand-crack.

In shoeing the hind-feet, it is no less necessary to examine the direction of the legs, and the position of the feet. Let the farrier place himself behind the horse, and trace with his eye a perpendicular line, which, proceeding from the point of the hock, should fall on the sole, passing through the center of the heel. He is to observe, if the line fall within the foot, whether the points of the hocks incline to each other; or if it fall on the outside of the foot, whether both hocks do not incline outward. In the first case, by viewing the horse in front, he will perceive that the toes of the hind-feet are turned outward; and in the second, on the contrary, that they are turned inward. He should then examine the legs sideways, to determine whether the hock is too much bent, too strait, or too open. Next, if the foot be found good, and free from cracks, and the leg in a proper direction, he should proceed in all respects as before directed, and make use of the concave shoe, O.

A flat foot must be pared with great caution, the buttress must only slightly touch the wall. Nothing must be cut from the sole or frog, these parts re-

quiring all their strength to resist the humours, in which they too much abound; whilst the wall, deprived of it's nourishment, exhibits itself dried up, irregular, and scaly. In this case use the shoe, P.

The convex foot is that, the sole of which descends below the quarters, presenting a convex surface to the ground. As in this case the horse is obliged to bear on the center of the sole, he would soon be incapable of service, if shoeing did not afford a remedy. The defect is always accidental, the result of paring the feet to excess, and of giving a concave shape to the upper surface of the shoe, which, by compressing the quarters, forces down the weakened sole, so as to make it lose it's natural shape, and to acquire a greater or less degree of bellying out, or convexity. This bad shape of the shoe impairs the strongest feet, crushes the quarters, and contracts the heels; from whence a compression of the quick parts ensues, and consequently lameness. For the convex foot there is no remedy, except checking the progress of the defect. The sole must be most cautiously pared, as in the flat foot, and use made of the shoe, Q, the shape of which must be altered according to the state of the foot; but it is impossible to give the foot a solid base upon the ground, on account of the convexity obliged to be given to the shoe.

Let

Let us now proceed to the shoeing of feet very defective in their position. When the toes turn outward, the pressure of the foot on the ground lies chiefly on the inward quarters; the object, then, is to diminish the pressure on the inward, by increasing it on the outward quarters. The method is, first, to preserve to the inward quarter all it's height; 2dly, to lower that of the outward quarter; 3dly, to increase the thickness of the inward branch of the shoe; 4thly, to render the outward very thin. By this two-fold operation, the foot will be brought back to the vertical plane, and will bear equally, and at the same time, on all parts of it's circumference.

Care must also be taken to shoe with great exactness, and very short at the inner heel; because horses which turn their toes out are apt to cut themselves with the extremity of the inner branch. But it must be observed, if the defect under consideration has it's origin in the upper parts of the extremity, or in the too narrow conformation of the chest, as sometimes happens, we must renounce the method just laid down; because, by suddenly altering the position of the foot, though a vicious one, we should expose the ligaments of the articulations between that part and the shoulder, to hurtful extensions, of more dangerous consequence than the fault we meant to correct: it is therefore only when the fault lies in the fetlock, that the
above-

above-directed remedy may be attempted, by a slow and gradual process.

When the toes turn inward, the direct contrary method must be taken; viz 1st, cut the inward quarter; 2dly, preserve the outward; 3dly, increase the thickness of the branch on that side; and, 4thly, diminish that of the inward branch, by taking off as much as possible from the wall, reckoning from the middle of the toe to the middle of the inward quarter, because it is with this part that the horse cuts himself; but, previous to taking any steps, the same mode of examination must be adopted as before recommended.

Of the narrow Heel, or Hoof-bound.

This defect consists in the excessive contraction of the quarters and heels, and is natural to many of the horses of the southern parts of Europe, and also to bred horses in general. The defect is natural, therefore without remedy. We must shoe such a foot as if it were a good one, with the concave shoe, which will project rather more than it ought. This is the only means of stopping the progress of the defect; which the common farriers increase, by cutting away the sole, the frog, and the binders. This, when not a natural defect, may proceed from the dry disposition of the fibres, or the hoof; but this, however great, seldom produces

duces lameness. It is to the hollow upper surface of the shoe, the paring-knife, and that butchering tool the buttress, (with which scarce one farrier in a hundred is fit to be trusted,) that the evil here spoken of is to be attributed. A hoof-bound foot is seldom radically cured, though it may be somewhat amended. To this end the foot must be preserved entire, in the growth of which the heels will be a little thrown out. Pare the heels flat, as well as the whole circumference of the wall, and use the common concave shoe. Bathe the feet in lukewarm water, applying emollient poultices under and over the foot. Remember a year is but a short term for a cure of this disease, as may be judged by the slowness of the re-production of the nail. In the veterinary schools of France the slipper shoe is their only resource as a remedy for this defect. It's shape is exactly the same as the common shoe in the whole extent of it's surface; but the outward edge is exceeding thin, whilst the inner is altogether as thick, so that the side of the shoe towards the foot forms a slope, the pretended use of which is to press open the heels, and turn them outward. But nature will never consent to be forced; and farther, they really increase the cause of the defect, by opening the heels as the farriers do, in order to apply the slipper-shoe.

To

To shoe a Horse that cuts.

The feet being turned inward or outward, the horse cuts either with the toe or heel. This accident will be increased by weakness or weariness. The only remedy consists in applying a shoe perfectly exact, and very short on the inner side, and without stamp-holes on that side; and paring off from the quarter as much as may safely be done without destroying it, as frequently happens. The farriers, unable to succeed by this simple method, give the inward branch of the shoe several irregular forms, which, without being of any service, cause the feet to bear uneven on the ground. The excessive thickness which some farriers give to the inward branch of the shoe, and the cramps which others raise on some points of that branch, are perfectly useless, for the following reasons. It is not when the foot is on the ground, but when it is raised, that it cuts the neighbouring leg; consequently, whatever position we give the foot, by means of the shape of the shoe, we shall never be able to change the action or play of the muscles, nor the direction of the articulated part of the leg. It is possible, by the manner of shoeing, to turn the toes and heels a little inward, or a little outward, but this effect can only last while the foot is upon the ground; as soon as it is raised, it must follow the direction given by the leg, and form a curve,
larger

larger or smaller, which brings it nearer to the supporting leg, and which it will strike every time the horse happens to close his equilibrium in going. The only remedy is to shoe to a nicety inwardly.

Of the Causes of the Over-reach, or striking the Hind upon the Fore-Fet, and the best Mode of shoeing in that Case.

The stroke, in an over-reach, comes either upon the fore-shoes, or between the branches, or upon the heels themselves, which are sometimes dangerously cut or bruised. It is obvious this could not happen, unless the fore-feet remained too long on the ground, or the hind ones rose from it too soon. This is the effect of the particular conformation of the horse; though sometimes the fault of the rider, and sometimes of the farrier.

Horses with large shoulders, a bulky head, the neck too long or thick, and low before, are those most liable to over-reach: the fore-legs, being overburdened, rise, but with difficulty, not sufficiently, and cover very little ground. The same of a horse when he is too high in his hind-quarters; which is as much as to say, he is too low before. A horse over-reaches also when his fore-legs stand under him, that is, when they incline obliquely backward, or when the hinder extremities approach too near the center of gravity of the body, from the
general

general direction of the limb, or too great bend in the hock. Other causes of over-reach are, when the horse is too short in the body, when the backbone is curved outward, or from the accidental cause of the rider over-burdening the shoulders; a fault very common in England, where horses are ruined in their fore-parts sooner than in any other country.

The rider's neglect, in holding too slack a rein, may dispose a horse to over-reach; the toe of the hind, and the heel of the fore-shoe, being too long; in fine, the natural laziness of a horse may occasion the defect. As a remedy, we must endeavour to accelerate the rising of the fore-feet, and to retard that of the hind; in which we sometimes succeed by the following means.

Cut and pare the fore-heels as much as possible without weakening them, and then use the half-moon shoe, N, of which the heels are very short and thin; on the contrary, preserve all the height of the hind-heels, take off as much of the toe as possible, and shoe very short in this part. Use the shoe, O. The probable effect of these measures deserves to be explained. The height of the fore-heels being reduced, will expose the flexor muscles to a greater extension; whence will proceed a degree of uneasiness, which will oblige the horse to lift his foot sooner from the ground than usual, with the heels higher. Behind, on the contrary,

trary, not only the whole height of the heels will be preserved, but an addition made; and, from the thickness of the shoe, the last degree of extension of the flexor muscles will be retarded. The horse, far from being induced through pain to take his hind-leg from the ground, will keep it there longer than if his heels had been lower; and thus there will result a greater interval of time between the motion of the fore and hind-heels, which will oppose itself to the action of over-reaching. The following comparison will serve to illustrate this principle. Women who wear very high-heeled shoes, walk all with their knees more or less bent; so that the extensor muscles never attain the last degree of contraction, nor the flexors, the last degree of extension which the construction of the leg would admit; but should they suddenly adopt low heels, they would at first experience a painful stretching in the last-mentioned muscles, which would oblige them to lift their feet sooner from the ground than in the former case.

It will be observed, with much justice, that, as the application of these principles produces pain, it cannot be agreeable to nature; this I admit, and therefore recommend acting in this case with all possible prudence in the beginning. The objection, however, is not so solid as at first may appear, except when applied to old horses, where it is valid in its fullest extent. It is quite otherwise in a young horse

horse: at that age, the carriage of the body, and the position of the feet, may be as successfully corrected as among mankind; where an attention to carriage improves, and almost alters the form of individuals; and, though attended with some uneasiness at first, is soon converted into nature.

When a horse is brought to be shod, let the farrier examine the old shoe, and observe what part is most worn. If it be the outward branch, preserve the quarter on that side, and increase the thickness of the shoe at that part; he will by that means remedy the fault. Besides, particular cases constantly occur, which require the shoe to be differently shaped: for instance, when the quarter or heel has been destroyed, the foot wounded or pricked, the sole compressed or burnt, &c. In such cases it is impossible to lay down invariable rules; the operator, guided by the actual state of the foot, must give the shoe, or some of it's parts, a shape adapted to the affected part, and calculated to assist it's healing. As to the half-moon shoe, the semi-half-moon shoe, &c. we shall mention them in treating of those cases in which they are to be applied.

You, whose office it is to shoe the valuable creature which is the subject of this lecture, let me intreat you to abandon that blind and perverse custom by which you destroy that essential part of him committed to your care. Submit your understandings

ings to the light of reason and experience, and endeavour to obtain a knowledge of those principles, on the perfection of which your art depends, and which alone can lead you to a sound and enlightened practice. Bear constantly in memory those rules and those cautions which I have given you, in respect to the preservation of the foot. Imitate with the shoe the concave form of the foot. Beware of the stupid and dangerous practice of compelling the foot to fit the shape of your shoe. Abandon that other common practice of making the inner surface of the shoe hollow, except in the case of a convex foot. Above all, avoid turning the branches of the shoe obliquely outward, because this distortion pinches the quarters and heels, and in the end crushes them. Weaken the shoe-heels: depend upon it, when they are thicker than the toe, they raise the frog too much above the ground; and then the horse is in the same case as you would be, if obliged to walk on tiptoe. This last fault contributes much to ruin the legs. Lastly, remember never to rasp the surface of the hoof above the rivets.

By adopting the methods here recommended, you will avoid the gross errors every day committed; and if you have courage sufficient to conquer your prejudices, and to apply yourselves to the study necessary for acquiring the true principles of your art, public opinion would soon place you on a level with

with men enlightened, and therefore useful to society. You will by such means deserve well of your country.

LECTURE IV.

ON THE NATURAL AND ACCIDENTAL DISEASES OF THE FOOT.

I Shall begin with M. la Fosse's description of that well-known disease called the *bleime*, or corns, reserving to myself the privilege of making some observations upon it. La Fosse says, "The *bleime* is a redness in the sole of the heels, and is of two sorts, the one natural, the other accidental. The natural sort comes without any apparent cause, in feet with large heels, and is of four kinds. In the first, there appears a redness, produced by extravasated blood dried up in the pores of the horny sole. In the second, there appears in the horny part, which is split, a black spot, like the prick of a nail; and, on examination, the channelled or laminated flesh appears black and putrid. In the third kind, on paring the part, matter is
observed

observed to issue from the channelled flesh in the heels. In the fourth, an opening or separation is observed, on paring between the wall and the soles of the heels, caused by the matter, which is black, and in a small quantity. To these four kinds may be added a fifth, in which the wall of the heels is reversed to the form of an oyster-shell; which, bearing inwardly, compresses the channelled flesh of the heels. These kinds of feet have no binders, and but very little sole, easily yielding to the pressure of the fingers.

"The accidental bleime is caused by bad shoeing. Low heels, bearing upon the shoes, are thereby compressed and bruised. They may, in like manner, suffer from gravel lodged between the shoe and the heels, particularly after the foot has been pared. A bruise is the cause of this sort of bleime; to remedy which the foot must be short-shoed, and not pared, and thin at the heels, that the frog may totally and equally bear upon the ground. In the second sort, where the black spot is observed in the angle of the binder, and where the foliated flesh is putrid, an opening must be made with the buttress, and pledgets steeped with spirits of turpentine introduced; which is to be held in a state of compression, lest the foliated flesh should rise above it. In the third kind, where in paring matter is observed to issue from the furrowed flesh of the heels, recourse must be had to
other

other means. The fifth results from a natural defect in the formation of the foot; the heels have scarcely any binders, the bleime is barely covered by the horny substance, the horse is very tender in that part, because the wall is inverted, and pinches the foliated flesh. This unnatural growth of the horn must be cut with the bottress. Sometimes it suppurates; in which case an opening must be made, to give the matter a free issue; with care not to make it too large, lest the flesh should rise in lumps, called in French *cérise*, or cherry. The dressing consists in pledgets laid one over the other, in order to support the flesh, which naturally falls."

It would be difficult to give a better description of the bleime, or to prescribe a more proper method of treating it; but I do not entirely agree with M. la Fosse on the cause of the bleime, nor do I believe it proceeds so frequently from nature. It is indeed sometimes met with in feet with heels too hard, but not so often as would be supposed, after his description of it. Indeed Arabian, Barbary, Turkish and Navarine horses, and in general all horses in southern countries, are more subject to this sort of corns than the northern, because their feet are harder and drier.

Low heels, with scarcely any binders, he says, are naturally subject to corns: on the contrary, I conceive, that although this mal-conformation is

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the predisposing cause, that the bleime, or corn, is always determined by some immediate cause; either by the pressure of the shoe, or by gravel or stones lodged between the branches and the sole; in proof of which, I assert it is possible, by good shoeing alone, to prevent this disease even in low and weak heels.

I shall omit all the superfluous divisions of M. la Fosse, and state at once, that a simple corn is at first observed by a redness in the part of the sole situate between the heels and the binders, and that it's progress is in proportion to the cause which gave rise to it. A black spot sometimes appears, which announces that the living parts are more or less affected; and, in paring the foot, a black sanies, or gore, is often noticed, which has destroyed the fleshy sole in this place, and even the foliated substance, so as to have excavated the wall, from whence results the inversion of the quarter. I have found, by experience, that M. la Fosse's method in treating this disease is the best.

It is necessary here to examine the common practice of farriers in the disease in question. The chief care to be taken in paring the foot, is to preserve as much as possible the heels, quarters, and binders. On the contrary, the common farrier begins by cutting away all the parts, without reflecting on the length of time required by nature for their re-production. After this, the operator is

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under the necessity of erecting a purchase in the room of that destroyed; for this reason he puts on a bar-shoe, upon which the frog is obliged to perform the office of the heels. This shoe is generally ill-shaped, heavy, and ruins the foot, instead of easing it. If the intent were skilfully to preserve the foot, instead of destroying it, instead of the bar-shoe, the half-moon shoe, S, ought to be employed; which, by leaving the frog and heels free, will facilitate their growth. I foresee the half-moon shoe will be objected to as impracticable in a country where the roads are covered with flints and gravel, which would inevitably destroy the naked heels. This objection would be reasonable, no doubt, if the horse were put to work immediately; but common sense would direct the keeping the horse at rest, until his heels should have acquired consistence and strength, when the advantage of my method would be apparent.

Of the Seime, or Sand-Crack.

This is a cleft in the hoof, more or less visible when the horse rests his foot on the ground. The best method of prevention, in dry feet, is to keep the fibres which compose the hoof pliant, particularly near the coronet: this may be effected by the use of emollient baths, made with a decoction of mallows, or with simple water; and by the application

cation of poultices of the same ingredients, or of pellitory of the wall, and the like. In this case, the use of oils and greasy ointments is to be entirely rejected. Farriers, and particularly grooms, use such things with the intention of rendering the foot more pliant, and to blacken the hoof; and, only exercising an indiscriminating instinct, attribute to these greasy substances the faculty of softening, nourishing, and relaxing the horny substance of the hoof, because they see such effects produced by them upon leathern harness; being ignorant that oily and fat substances, applied to living and organized parts, obstruct the pores, oppose the passage of insensible perspiration, and excite inflammation and suppuration. The best method of convincing these ignorant people, is to refuse paying for any such pernicious articles, by forbidding them, and, finally, by discharging any groom who should infringe his orders. But the abject state of veterinary medicine in this country, together with that blind and unlimited confidence which masters place in ignorant grooms, will yet for a long time resist this salutary reformation. As a truly ludicrous proof of this, I cannot forbear inserting the following advertisement, which appeared in one of the public papers: "Wanted a man and a boy, a father and son would be preferable. The man must be perfectly well acquainted with the nature and care of horses, in breaking, nicking, and *phy-*

sicking: he must be willing to do all kinds of outdoor work."

If it can be imagined that an illiterate servant may possess the knowledge of Hippocrates, it would be wrong to place any confidence in physicians, whose advice is attended with great expence. Would it not be better to advertise for a servant properly qualified to dress hair, shave, bleed, prescribe a purge, and even to cut a leg or an arm off, if his master should have occasion?

I now proceed to that very stubborn disease which generally baffles the skill of the farrier, called by the French *fic*, or *crapaud*, and by the English *canker*. This disease more frequently affects the hind than the fore-feet, and the causes which give rise to it may be divided into internal and external; the latter display themselves by the excessive height and thickness of the heels, in feet the frog of which, though naturally of but little bulk, is yet compressed on both sides. The continuance of acrid and irritating mud, and of urine and dung, soaking into the feet, together with the operation of the buttress, which, by destroying the covering of the frog, exposes it to the action of acrid matter, dispose the feet to canker. The inward causes of canker are such as vitiate the humours, direct them to the legs, and give rise also to the running thrush. These humours, having acquired a sufficient degree of acrimony to become corrosive,

corrosive, fall upon the frog, and there produce the canker. The danger is in proportion to the parts affected. When the frog and the flesh only are affected, and the disease not deeply rooted, the cure will not be difficult; but if the aponeurosis of the flexor muscle of the foot, and even the bone itself, are affected, and the progress of the disease extended to the quarters, it then separates them, by destroying the fleshy sole near the heels, as well as the foliated or laminated substance; and even the posterior part of the cartilage is not always safe from attack.

That we may not confound the canker with other excrescences which arise in the frog, or near the heels, we must examine it's substance, which, for the most part, is filamentous, or thread-like, and soft, presenting numberless small excrescences, like little mushrooms, but very slender. To obtain a radical cure, we must not confine ourselves to the common methods used by farriers, consisting in the application of caustics, which burn only the surface, leaving the root immediately to reproduce the disease. It will be first necessary to examine whether the horse be troubled with the running thrush, whether the cracks exist only in the folds of the pastern, and whether a corrosive humour issues from the part. We must endeavour to remove the disorder which is the primitive cause of the canker, and not attempt to cure the disease before we have freed the leg from every kind of

discharge. With that intent, we must begin by putting the horse on a low diet for two or three days, to prevent a fever, which is sometimes dangerous. He must be bled, and a few emollient clysters injected, of a decoction of mallows, adding every day three or four quarts of a cooling mash, made of a decoction of the root of marsh-mallows, with three or four drachms of nitre dissolved in each mash. With this preparation, the operation of unsoling is to be performed, that we may more easily discover the part affected. The instrument employed in this operation is called the sage-leaf, with which the canker must be eradicated, by making a deep incision to it's very roots, whether it affect the fleshy substance of the frog, the aponeurosis of the flexor muscle, the laminated or foliated flesh, or even if it penetrate to the bone of the foot; but as the cartilaginous, aponeurotic, and bony parts, will admit of no cure without exfoliation, the application of an actual cautery to the extremities of the parts that may have been affected, either by the disorder or the instrument, will be found requisite. After the operation, pledgets of tow, moistened with tincture of myrrh and aloes, or the traumatic balsam, may be laid over the cauterized parts; the surface of the wound is to be dressed with a pledget dipped in the ætherial spirit of turpentine, and the dressings so managed, as to make an equal impression on all the

the parts. If the operation should have been long and painful, the horse should be blooded again, plenty of blanch'd water given him to drink, and but little solid food. In three or four days, dress the wound for the first time; two days afterward, repeat it; and examine whether suppuration has taken place, and what it's quality is. If a kind of red serum appear, it is a proof that the root of the canker is not totally destroyed, and recourse must be immediately had to a second operation, which must be carried so deep, that no traces of the affected part may remain: In case of proud flesh, apply a digestive, made with the yolk of an egg, turpentine, oil of hypericum, and a sufficient quantity of powdered vitriol, to check it's over-growth. Of course, a perfect exfoliation of the aponeurotic, cartilaginous, and bony parts, must take place, without which the scar would prove deceitful, and the canker would in time spring up again. In the mean time, we are to guard against a symptomatic fever, which generally attends the cure of this disease.

The next evil is called *javart*, in French; in English, the *horny quittor*; one of the most rebellious and difficult of cure of all the diseases incident to the foot, and which requires the greatest anatomical knowledge in the operation necessary for it's cure. It is produced by various causes; such as a blow, or violent contusion in the coronet, pro-

ducing inflammation, suppuration, or a caries or rottenness of the cartilage; a deep crack, neglected or ill-treated, which, penetrating the cartilage, affects it grievously; a corn, the matter of which, finding no passage through the sole, forces it's way up between the quarter and the foot-bone, by destroying the foliated substance, opens itself a passage in the coronet. An acrimonious humour detained in the part may give rise to a quittor, or suddenly suppressed perspiration; or it may be produced by the mud of great towns, composed of iron, urine, and other corrosive matter. The disease may be compared with the third species of whitlow in man. A fresh quittor, which has not affected the cartilage, is easily cured, by the usual treatment of simple wounds; but if an old case, the cure is doubtful, because it is required to extirpate all the parts which the matter has rotted.

Farriers unacquainted with anatomy, and the organization of the foot, can form no idea of the surgical operation required in this case; it is even lucky they do not attempt it; the probable consequence of which would be, the laming for ever ninety-nine out of an hundred of all the horses which came under their hands. Their method extends no farther than the application of caustics, searing-points; and fire-stripes; which superficial applications are of no radical benefit: for while the farrier is amusing himself with burning off the fringe

fringe of the exterior wound with vitriol, the matter is making such progress inwardly, as to render the quitor quite incurable. Daily facts, and the number of miserable animals labouring under these incurable diseases led to the slaughter-houses, fully confirm the truth of my observation. Let us suppose a case of confirmed quitor: first begin to probe the wound, by carefully following the depth and direction of the fistulas formed by the matter in the foot, and endeavour to find whether the cartilage be affected; but as it may be sometimes impossible to judge exactly of the irregular bottoms of the wound, it will be necessary to proceed to the operation, under the following precautions. Begin by reducing the horse's food, and giving him plenty of white water; pare the foot, and rasp the quarter thin, near the place of the operation, wrapping the foot up in an emollient poultice for two or three days. The horse must then be cast upon plenty of litter, and a ligature made round his pastern, to prevent an hæmorrhage, or flux of blood; an incision is then to be made with a bistory parallel with the coronet, and long enough to discover the cartilage in all it's extent; as much of the upper part of the wall is to be cut away as is necessary, but the lower part of the quarter, as well as the heel, should be preserved, to serve as a fulcrum, or purchase, for the foot, unless the state of the disease requires otherwise; then with a sage-leaf, having a

blunt back, and being slightly bent, cut away the cartilage gradually, at three or four different attempts. It is in this conjuncture that the anatomical knowledge of the foot is of indispensable consequence, particularly while the operator is passing his instrument behind the cartilage; because this part covers the principal blood-vessels of the foot, as well as the capsular ligament of it's articulation, with the bone of the coronet; an accidental opening or breach of which would lame the horse for ever.

But however dexterous a person may be in extirpating the cartilage with the sage-leaf, some portions of the root of it, which are inserted in the bone of the foot, will still remain: these must be taken away with a scraping-knife, managed with all possible dexterity; observing to fix the instrument on a solid part, and gently bearing from within, outward, to avoid opening the capsular ligament, which is very near the parts in which the operation is performed. When the last portion of the cartilage is taken away, examine whether the bone of the foot be carious; if so, remove the carious part, and apply the actual cautery, in order to facilitate exfoliation.

Next, inspect minutely into the bottom of the wound, to ascertain whether any sinus or fistula remain; and when the operation is completely performed, lay on the first dressing, by applying to the
bottom

bottom of the wound small pledgets, soaked in a mixture of brandy and vinegar, or spirits of turpentine. These dressings must be so disposed as to make an equal, but sufficient compression on all the surface they cover; and the dressing may be finished, by laying over the wound, and round the coronet, large pledgets, to avoid compressing that part; which must be carefully attended to.

The bandage consists of a piece of linen, almost square, and big enough to go round the pastern and the foot; and a roller, three ells in length, or thereabout, and two inches in breadth: the whole being skilfully laid on, the horse must be led back to the stable, limping on three legs, and afterwards the ligature must be taken off. It is proper to bleed him in the jugular vein, to prevent a fever, which commonly succeeds so painful an operation; and he ought to be kept to white water, and a spare diet, of mashes, &c. for a few days.

The first dressing must remain a week; and then the wound must not be examined, or probed, lest a hæmorrhage should ensue. The second should be taken off in five or six days; at which time the suppuration will begin to take place, unless the wound has been too strongly compressed; it is then to be dressed in the same manner as at first. In a few days the third dressing must be taken off, when the veterinarian must examine whether there are any black spots on the surface of the wound,

which is commonly a proof that the cartilage has not been entirely taken away. In this case, another slight operation will be necessary, to remove entirely the small particles that may remain. Afterwards the wound is to be dressed every other day with the same digestive, excepting the parts which have been cauterized; upon which small pledgets, dipped in tincture of myrrh and aloes, are to be laid, as a spirituous desiccative, to hasten the exfoliation, which usually happens within fourteen or fifteen days, though I have seen it not take place in a month; but this depends on the age and constitution of the animal.

When the eschar has fallen off, the wound soon fills up, but it is essentially necessary to be assured of a perfect exfoliation; for if any particles of the cartilage, or the bone, should remain, they would give rise to fistulas, make the cicatrization imperfect, and occasion the need of a second operation.

To prevent such a misfortune, it is necessary, at every dressing, to examine the wound with the greatest attention, and to see that it contain no black or livid spots, which furnish a greater supply of matter than the wound itself. Probe these spots; and if the exfoliation be judged incomplete, introduce a sufficiently solid tent, soaked with aloetic and myrrh tincture, and lightly dusted over with powdered vitriol; in order, on the one part, to facilitate the separation of the non-exfoliated portion, and,

on the other, to consume part of the flesh which covers it. When once the bottom of the wound is expunged and clean, it assumes the appearance of a simple wound, and a perfect cicatrice will make ample amends for all the trouble.

LECTURE V.

ON FOUNDERING.

THE founder is the most severe and stubborn disease to which the horse's foot is liable, and almost always fatal, unless subdued in its origin. It is to be considered as a fluxion, more or less inflammatory, seated more particularly in the interior of the foot.

The symptoms may be divided into common and particular. The former are pain and heat in the feet, especially at the coronet; fulness or plethora in the vessels of the leg, and strong pulsation in that part; a swelling in the sheath of the tendons; also a symptomatic fever, when the disease becomes serious, whence results dulness, and a distaste for solid food; but these latter symptoms only
appear

appear when the pain and inflammation are far advanced.

The horse discovers the particular symptoms by his step, and by the position of his legs when standing still. If, for instance, the founder be in the two fore-feet, the pain in those parts obliges the horse to throw back the weight of his body upon his hinder extremities, in such a manner, as to bring them forward very near to the center of gravity; whilst the fore-legs remain in an oblique direction, inclining backward. In this position, the loins are in a state of continual exertion; he experiences great difficulty in moving, and his fore-legs do not quit the ground till his hind ones are brought very far forward under his body, the whole weight of which they are obliged to sustain. This painful translation of the body obliges the horse to bend the spine; and this forced action in the vertebrae of the loins, persuades the farriers that the seat of the disease exists in the muscles of the back and loins, to which they apply remedies of all kinds; the effects of which are always useless, often dangerous. The unsuccessful issue of this treatment determines the farrier to draw a consequence evidently false; he supposes the disease has changed its place, and fallen into the feet.

If the founder be in the hind-feet, the animal stands in a position directly opposite to that we have

have been describing. He carries his body forward, with his head low, and his fore-parts under him, by which means the withers become lower than the croup; in short, he is urged to ease his hind-feet, by throwing the weight of the mass forward. But as the hinder extremities are always particularly employed in projecting the body, it is easy to conceive how very painful this effort must be, since it is with the fore-legs that he is now able to effect it. It is easy to perceive how constrained a horse is when he displaces one of his fore-legs: he hesitates some time before he moves it; and has scarce taken it up, before he speedily replaces it on the ground; and, during the action, the tremor and vacillation of the other fore-leg denotes the excess of weight which distresses it. The disease is rendered dangerous by the painful and forced state of the parts, inducing a considerable degree of fever; which announces itself, as in all inflammatory cases, by the hardness and quickness of the pulse, the heat of the mouth, attended with unnatural thirst, partial sweatings in the neck, near the shoulders, between the fore-legs, in the flanks, &c.

A horse is sometimes foundered in all fours, and is then unable to stand; he is therefore constantly lying down; and I have seen one place himself upon his back, in order to find ease. It is uncommon for this distemper to attack one foot only,

only, either before or behind. Some authors have invented various causes of this disease; they have supposed it hereditary, or have endeavoured to explain it by the aid of physiological systems, which sound reason never can adopt. We shall confine ourselves to such as are confirmed by daily experience.

The most dangerous cause of all is a suppression of the perspiration; this occasions a great inflammation in the feet, the progress of which is exceedingly rapid; the superabundance of blood, it's thickness, the vitiated disposition of the humours, may increase the intensity of the fluxion, and render it's resolution more difficult.

Violent galloping, or too hard labour, may occasion foundering, or it may proceed from too much rest; and it is not uncommon to find a horse in this state from remaining too long in the stable. Any superabundant evacuation, such as bleeding, may also have this effect; or the immoderate use of very nourishing food, such as lucern, saintfoin, clover, barley, beans, vetches, pease, &c.

Bad shoeing will also produce this distemper. The common farriers, by scooping the sole to excess, occasion it to dry up, facilitate the contraction of the heels, and the shoe which they use, being concave at top, completes the contraction of the whole circumference of the foot.

It is remarkable, that all those who wrote before

fore the use of the iron shoe, dwell very little on the diseases of the feet, especially those of the severer kind; which furnishes a very fair inference, that the method of shoeing may be considered as a principal cause of those evils. Indeed, when we consider how very delicate, at the same time how very important a part of the animal machine the foot is, when we reflect how absolutely the foot is compelled to obey the form of the shoe, whether it favour or counteract the original design of nature; when we add to these considerations, the mischief which the wrong direction of a single nail must occasion, or an ignorant use of the instrument with which farriers weaken or impair the natural armour of the foot; and, finally, if we subjoin the education of those to whom custom has hitherto committed this important trust, and the quality of the art they profess, we shall be fully convinced that these causes have considerably augmented the number of the diseases of the feet.

To return: if in the state of constraint occasioned by bad shoeing, the horse is obliged to tread on dry hard ground, inflammation and foundering may be the consequence. This distemper may also succeed a painful operation; but as several of these causes are of opposite natures, they must necessarily occasion a difference in the disease they produce; and it is on this account that a founder is attended with degrees of inflammation according to the

the principle whence it arose; it must therefore be treated according to the characteristic symptoms.

The following is a literal account of the treatment of this disease in the veterinary schools upon the continent. Having practised it myself with success, and being convinced that it is the result of the most mature consideration, I recommend it in preference to any other.

This method is divided into internal and external. As to the first, when foundering proceeds from the rarefaction of the fluids, frequent and plentiful bleeding will operate with effect in the beginning; as also salts, dissolved in a decoction of acrid plants. To this end, take of sorrel leaves four handfuls, wild endive two, common salt four ounces, salt of nitre one ounce; boil these in two quarts of water; take it off the fire when the sorrel is sufficiently done, and give it in two doses, at the interval of an hour.

If the distemper be of long standing, and the fluids condensed, which naturally follows their rarefaction, bleeding is recommended, and the salts should be administered, dissolved in sudorific infusions. Take of burdock-root four ounces, of fixed alkali one ounce; let them boil a quarter of an hour, in two quarts of water; take them off the fire; add angelica and wild valerian roots, of each two ounces, elder flowers a handful; let them infuse two hours; pour the liquor off, and add two ounces

ounces of sal ammoniac at the time of giving the draught.

When the condensation is excessive, the pure alkaline salts, dissolved in proper infusions, are the only means to be employed. Take of the pure vegetable alkali, one drachm; of essence of turpentine, two drachms: mix and shake them in a small phial. Add this mixture to the first draught of the vegetable decoction above described. These active sudorifics will operate with equal effect when the cause proceeds from a sudden suppression of the perspiration. In all these cases, we must not omit the use of diluents, which assist the action of the remedies: accordingly, this should be followed by two or three diluting draughts, if they only even consist of a simple decoction of mallows.

When a founder proceeds from want of exercise, it requires less active sudorifics, corresponding to the progress which the complaint has made. For this purpose, take of gentian root and rhubarb, of each four drachms; filings of steel, two drachms; bruise them, and boil them in three pints of water twelve or fifteen minutes; infuse two hours, then pour off, and add sal ammoniac two ounces. After this draught, give the purge, No. 8. When the disease arises from over-feeding, bleeding must be omitted. If the belly be hard, tight, and overloaded, recourse must be had to the emollient clyster, No. 12, and the purgatives, No. 11; which are to
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be more or less increased, according to their operation in the draughts of infusion of sage and wormwood, No. 5. After, however, the stomach has been emptied, we may venture to bleed; we may then give a gentle purge, No. 9, or a more active one, No. 8, according to constitution, age, and circumstances.

Sometimes this disorder seems to arise merely from a superabundance of the fluids in the body, in which case use the evacuants, No. 8, and the clysters, No. 2; and if there is reason to be alarmed at a too great fulness of blood and humours, these medicines should be preceded by bleeding, and the diluents, No. 6.

A founder sometimes happens, and no cause apparent, but the usual symptom, a pain in the feet. In this case, immediately remove the shoes, and examine the parts affected. The mischief may arise only from painful compressions of the sole or heels. Relief being given in those points, recourse may be had to bleeding, the draughts, No. 7, and to the clysters, No. 12. To conclude, the disorder may be occasioned by accidents, or proceed from excessive pains in some exterior part of the body, often very remote from the feet; in such case cooling draughts and emollient clysters must be given, and anodyne poultices and unguents applied to the parts affected.

Besides the internal treatment, foundering requires

quires an external and local one, of no less importance; the method of which must be determined by the actual state of the parts. If the disorder has not yet disfigured the wall of the hoof, if the coronet is not very hot, the vessels of the shank and pastern not very much swelled, and the pain in the foot not very great, we must frequently lead the horse to water, in order to wash and bathe the part; or, what is still better, we must let the extremity soak in cold water sharpened with vinegar and sal ammoniac, No. 16, or acidulated with any concentrated acid, No. 17. The foot is to be taken out, after having soaked an hour and half, or two hours, and the cavity, or under part of the foot, filled with pledgets of toe, or linen, steeped in oil of bayberries, very warm; and the coronet, the heels, and the wall, wrapped up in the poultice, No. 15.

These dressings must be renewed three or four times a day; and the internal and external treatment ought to keep pace with each other.

If the disease be more inveterate, scarify vertically and deeply the whole extent of the foot, without fearing even to touch the cartilages. Experience has proved, that such incisions, in the direction of the axis of the limbs, are not dangerous. Then put the bleeding foot into cold water, acidulated with sal ammoniac, No. 16; and, when the blood is stopped, use the dressing before prescribed.

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If the evil has made still greater progress, and the swelling and laxity of the coronet, the acuteness of the pain, and the bearing on the heels, announce that the vessels of the foliated or laminated substance are ruptured, removing the sole, or even paring part of the horn, would prove exceedingly dangerous, and might induce the loosening or displacing the coffin-bone; we must therefore leave to that part all the strength allotted to it, but the wall must be opened, by cutting away part of the anterior surface of the hoof, between the coronet and the sole, to the breadth of two fingers. After this, suffer the part to bleed plentifully in the bath, No. 17. Then dress as before directed, filling up the cavity resulting from the extirpation of the wall with pledgets steeped in oil of turpentine. If the evil has made still greater progress, if the bone of the foot has become carious, &c. it would only be a signal proof of ignorance and rashness to undertake a cure.

There are, however, founders of old standing, in the cure of which art may not be unsuccessful; but it must be in cases where the internal parts of the foot are only confined and painfully compressed; where they are unattended with fever, general or particular. The disease, in this case, is to be considered as chronical, and must be rendered acute; which may easily be done. To this end, the legs and feet must be rubbed morning and night with
essence

essence of turpentine, from the upper part of the shank to the coronet, and the frictions must be repeated the next and following day. The inflammation and irritation this treatment excites, will often produce, in a very short time, the resolution of the blood and humours, by which the parts contained within the wall were constrained and compressed. The horse must have walking exercise during the action of the essence of turpentine, and use must be made of the pledgets steeped in the oil of bay-berries, within the sole, and of the defensive poultices, No. 15.

In all cases of founder, the diet cannot be too strictly attended to. White water only should be allowed, No. 14. Solid food must not be given until the progress of the disease be stopped; and in case of over fulness of the humours, not till the horse has been purged. Walking the horse, however, can only be salutary when the founder has disturbed the bone of the foot; in that case, the motion it communicates to the fluids prevents their stagnation in the vessels, and helps to dissolve them.

MEDICAL RECIPES.

Draughts.

No. 1. Take sorrel leaves, four handfuls; wild endive, two ditto; common salt, four ounces; salt
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of nitre, one ditto: boil them in two quarts of water. When sufficiently boiled, pour the decoction from the leaves, and add to it the salts, and give it in two doses, at an hour's interval.

No. 2. Take burdock-root, four ounces; fixed alkali, one ounce; boil them a quarter of an hour in two quarts of water; take it from the fire; add roots of angelica and wild valerian, of each two ounces; elder flowers, one handful. Infuse two hours, then pour out; and add, at giving the draught, sal ammoniac, two ounces.

No. 3. Take volatile alkali, one drachm; essence of turpentine, two drachms; mix and shake these in a small phial; add this to No. 2, and give it immediately.

No. 4. Take gentian root, four drachms; rhubarb, four ditto; bruise, and boil them in three pints of water for twelve or fifteen minutes; then infuse of two hours, and add sal ammoniac, two ounces.

No. 5. Take Epsom salts, four ounces; cream of tartar, two ounces; boil them a quarter of an hour, in two quarts of water; add sage leaves and wormwood, two handfuls; infuse one hour; pour off for use.

No. 6. Take borage, French mercury, pellitory of the wall, wild endive, of each a handful; salt of nitre, an ounce; infuse the whole in three quarts of boiling water an hour; then pour off for use.

No. 7. Take of the draught, No. 6, a quart;
camphor,

camphor, half an ounce; rectified spirits, two drachms. Dissolve the camphor in the spirits, and add it to the draught.

No. 8. Take draught, No. 6, a quart; powdered aloes socotrine, one ounce; tartarised vinegar, four ounces. Warm it a little, stirring it till the substances are dissolved and mixed.

No. 9. Take No. 6, three quarts; tartarised vinegar, eight ounces; socotrine aloes, two drachms. Dissolve and mix, as before.

Clysters.

No. 10. Take No. 6, three pints; antimonial tartar, one drachm. Dissolve it warm, and give it after a purge.

No. 11. Take the above; aloes, two drachms; honey, four ounces. Dissolve it warm.

No. 12. Take draught, No 7; and use it as a clyster.

No. 13. *A Suppository.* Take soap, two ounces; socotrine aloes powdered, one ounce. Beat them in a marble mortar; make them into a roll with your hands, which is to be introduced into the rectum.

No. 14. *A Drink.* Take common soft water, a pail; whiten it with rye-meal, and add salt of nitre, an ounce.

No. 15. *A Poultice.* Take soot from the chimney, well baked, and sifted, one pound; mix it with a

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sufficient

sufficient quantity of the strongest vinegar. Renew this every four hours.

Baths.

No. 16. Take sal ammoniac, two ounces; sugar of lead, four ounces; cold spring water, one pail. Soak the part in this bath an hour. The same bath will serve several times, if care be taken, before it be used, to immerse the vessel in cold spring water.

No. 17. Take spring water, one pail; vitriolic acid, four ounces. Soak as above.

If the above treatment does not stop the progress of the disease, and produce a resolution of the humours, the event will be fatal. Sometimes the inflammation is so rapid, as to occasion a total falling off, or shedding of the hoof, in a few days. If this misfortune takes place on all fours, it is a lost case: we must not expect the re-production of a new hoof, except when one hoof only falls; and it often happens, that foundering attacks the foot that has been obliged to support the whole weight of the body for a long time. The part re-produced is always in some measure feeble and deformed, and the horse is only fit for the purposes of husbandry.

When the separation of the hoof does not take place, it becomes totally deformed; the toe grows long,

long, and bends upward; the surface of it is covered with irregularities, called *ci cles*; or the sole is pushed outward by the coffin-bone, which draws nearer to the perpendicular line, by detaching itself from the interior surface of the hoof; consequently the inferior surface of the foot becomes convex, and this conformation takes the name of *crescent*. In this state the horse must bear entirely on the heels and frog, and the leg, in moving, describes a semi-circle, from within outward, which in French is called *swimming*. In a less violent founder, although there be no deformity in the feet, yet the horse treads with difficulty, especially at coming out of the stable. The play of the joint being confined, the leg moves with stiffness, which occasions ignorant grooms and farriers to say the horse is lame and foundered in the chest and shoulders. But the obstacle to motion being in the inferior articulations, bathing them in warm mineral water, or in the mud of those waters, has often produced good effects.

LECTURE VI.

ON A STRAIN IN THE BACK-SINEWS, AND ITS RUPTURE—THE FRACTURE OF THE BONE OF THE CORONET, THE NAVICULAR BONE, BONE OF THE FOOT, &c.

ALL authors mention the extension of the tendons of the extensor muscles of the foot, vulgarly called *a strain in the back sinews*; they pretend to describe the causes, and prescribe remedies adapted to the cure. I am sorry to differ in opinion from them; but am convinced that no such accident can ever take place, and that they are deceived by erroneous ideas of the mechanism of the organs of motion, particularly of the legs.

Let us endeavour to explain this. In the first place, tendons are incapable of extension; in the next, they are not intended to maintain the bony parts in their places, which function belongs to the ligaments; and when the muscles contribute at all to that effect, the tendons which are their appendages are passively employed. Let us explain this farther, by taking the muscles of the foot for an example.

The muscles are provided by nature with a certain bulk and strength, sufficient to move the parts

to which they are affixed, and by this means the power is proportioned to the resistance; at the same time a light and elegant form is preserved, which the too great bulk of the muscles, or their multiplicity, would infallibly have defaced. The conversion of the fleshy fibres into tendinous, renders their insertion into the substance of the bone more solid; the fleshy part possessing a power of motion equal to the natural resistance, it would have been unnecessary for the tendon to possess the same faculty; it is therefore employed, on the contrary, as a fixed point for the action of the muscular fibres. Supposing the tendinous fibres were in a slight degree elastic, this would add nothing to the possibility of extension in the tendon; because an effort capable of destroying the natural degree of extension and flexion of the articulated parts, would lacerate the muscular fibres, before the tendinous would receive the smallest injury; therefore the tendon is incapable of distension. The part may indeed be broken, but it is by an effort very different from that which we have just supposed, and which shall by and by be explained. If the tendons were employed in maintaining the bones in their places, the muscular fibres would be constantly distended, or violently contracted. In either case, the action of the parts would be checked. The principal function, then, of the muscles and tendons consists in giving motion to the parts, and

not in supporting them. I have already said, the ligaments alone are employed in this last function; the ligaments would therefore be lacerated by any effort whatever, before the tendons would feel the least effect; which proves that these last parts are not subject, or exposed, to extension. Make use of the following experiment as an example. Dissect the flexor muscles of the fore-foot of a horse, and also the suspensor ligament of the pastern; afterwards place the leg in it's natural perpendicular position; steady the articulation of the knee, to prevent it's flexion, and lay on the superior part of it a considerable weight, exceeding that which it naturally supports; afterwards, cut transversely the tendons of the flexor muscles, *or back flexors*, and you will find, that the suspensor ligament alone is sufficient to keep the articulation of the pastern in it's place: observe, the whole weight of the body falls on this part, since all the parts beneath it, as the pastern, coronet, and foot, are removed from the perpendicular by describing an oblique line, which forms with the leg-bone an angle of full twenty-five degrees. If, on the other hand, you cut the suspensor ligament, you will see the articulation in question fall almost to the ground, and the muscles extended to a degree past the power of contraction, or even opposition to any resistance, in this violent state, should the case happen in a living subject. Although operations upon dead bodies

do

do not always produce the same result which is observed in living animals, here the question is purely mechanical, and may be attempted without any doubt of success. The extensor muscles, no doubt, exert a slight degree of contraction, in order to keep the leg strait, when standing; but the action is reduced almost to nothing, when the limb itself is placed in a perpendicular position.

But whence arise those swellings, which we so frequently observe along the tendons or sinews of the leg, after violent efforts, commonly called strains? There lies our present business. I do not mean those swellings which are the result of long continued exercise, or rest, or of internal causes, but those only consequent upon violent effort; as in the case of a horse treading upon an irregular surface, or leaping too suddenly, without being duly prepared; or executing the leap badly: in either case, the ligaments, which determine the extent of the flexion and extension of the parts, are distended and strained in proportion to the power acting on them, at the instant of their exertion, in consequence of their want of elasticity. It is also on this account that the pain occasioned thereby is great, and of long duration. It is this sharp pain which, irritating the neighbouring parts, inflames them, and causes the blood and humours to lodge there; but the ligaments themselves, being composed of an extremely hard texture, which receives scarcely

any kind of vessels, are not liable to swelling. The increase of bulk, therefore, is nothing more than a symptom of the complaint, and not the complaint itself, as has been too commonly supposed. The seat of the affection is still less in the tendons, since I have made it clear, that the rupture of the muscles must take place before the tendons can be at all affected, in case of a strain.

Many of my readers may find the mechanical and anatomical explanations given here difficult to be understood; but to those who are already initiated in the science, they will not be obscure; and to others, who are desirous of information, a very little attention will render them familiar.

By way of an additional example, if we were to dissect the leg of a horse labouring under a *strain of the back sinews*, according to the vulgar notion, we should discover no affection in the substance of the tendinous parts, which, on the contrary, would appear in their natural state; but if the surrounding parts were examined, we should observe, according to the direction of the disease, a relaxation in the sheaths of the tendons, or in the capsulary ligament of the articulations, or, in short, in the whole vascular system.

If the ailment be of long standing, and nature has exhausted all her resources in the endeavour to discuss the stagnated humours, without being able to succeed completely, a small hard swelling will
appear

appear in the sheaths of the tendons, sometimes two, and even three, which are called *ganglions*; the situation of which, near the tendons, is sufficient to make the horse walk lame for the remainder of his life. These ganglions are often the result of a bad cure; particularly when powerful astringents have been employed too early, and the use of emollients previously neglected. For instance, an unshod horse, which in a quick pace sets his toe upon a stone, may be violently strained, because in this false step, or wrong position of the foot, the articulations of the foot-bone, the pastern, and coronet, are stretched in their flexion; but the strain will be more dangerous, if the foot is shod with a shoe with very thick heels, and if the sole and frog are too much pared away, because these parts being too far distant from the ground, and the frog being intended by nature to support part of the weight of the body, is thereby rendered incapable of affording a purchase to the articulations. In this case, the effort is communicated to the bone of the foot, or coffin-bone, which presses upon the fleshy sole; and the pressure upon this part is often so violent, as to make it the seat of the disease; and a cure can be no otherwise obtained, than by the operation of drawing the sole.

The principles here laid down might be supported by a variety of observations on the mecha-

nism of the animal machine ; but this would lead me too far from my purpose ; I proceed, therefore, to the characteristic symptoms of the disease. These are, the swelling which appears between the knee and the pastern, and extends even to the heels ; and the tension, heat, and pain of the part, which occasion lameness in the horse.

These symptoms, it must be observed, are common to other cases ; such as a nail driven to the quick, or a blow on the tendon ; they may be equally the effect of long exercise, or an accumulation of humours in the case of an acute disease. It is therefore necessary to examine, with great caution, the nature and cause of this complaint. But if a horse, perfectly free in his limbs, is suddenly attacked with a lameness attended with a swelling in the parts just mentioned, and if this should happen after hard running, a leap, a fall, or a slip, without any blow, contusion, or wound in the tendon, we may then suspect the existence of a strain in the ligaments, and in the sheaths of the tendons. As in this case the fleshy fibres would participate in the effect of this extension, we should not neglect to feel the extensor muscle of the foot, which is situate at the hinder part of the arm, in order to discover whether the horse experiences any pain in that part, that the seat of the disease may be properly ascertained.

Astringents and repellents are the usual remedies.

dies. These succeed, if the accident be not violent, and they may be immediately applied; but if two or three days elapse before their application, they, on the contrary, fix the humour in the part, and coagulate it, constrict the vessels, check the circulation, and at length occasion indurations, the effect of the concretion of the fluids.

As no dependence can be placed in the accounts of grooms, we ought always to suspect the disease may be of some standing, and consequently should employ emollient substances in the beginning, as follows. Take mallows and pellitory of the wall, of each a handful or two; boil them three quarters of an hour in soft water, chop them fine for a poultice, which is to be applied to the leg from the knee down to the foot, and moisten it every three hours with some of the emollient decoction. Or take crumbs of bread, boiled in cow's milk, adding one drachm of saffron; or barley meal, mixed with a sufficient quantity of the emollient decoction of mallows, &c. or, for want of these ingredients, use a bath, or fomentation, of warm water; it is the most powerful relaxant in human, as well as veterinary medicine. If in eight or ten days the pain is not lessened, it will be necessary immediately to unsole * the foot, because it will be a proof of the

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pressure

* Highly as I respect the authority of Mr. St. Bel, I cannot avoid to acknowledge that I differ with him in opinion totally, in

that he is of opinion that it is necessary to unsole the foot in this

pressure of the bone of the foot upon the fleshy sole; a pressure which occurs oftener than is supposed, in consequence of a strain treated of in this lecture. If, notwithstanding, the swelling should not be entirely dissipated in about a month or more, and if there should remain those hard substances called *ganglions*, seated in the sheaths of the tendons, we must determine on the operation of firing, as the most powerful resolvent. This operation, to which I am no great friend, often produces good effects, when applied in time; that is to say, when applied before the humours become concentered, and the tumour insensible and hard. In the latter circumstances, firing goes no farther than to extract what little fluid may remain in the affected part, by the inflammation and suppuration it occasions; but it increases the hardness, and forever prevents it's discussion. After the operation, a horse ought not to remain long in the stable. It is necessary, in order to promote the cure, to exercise him daily.

I have this case. It is surely a very rash and hazardous practice to proceed to the cruel and dangerous operation of drawing the sole, merely because the pain occasioned by a strain in the back sinews, or in the leg or foot, is not lessened in eight or ten days; I can scarce conceive the necessity, or propriety, of unsoling in any similar case. I must also caution the reader against another mode of practice recommended above: no horse ought to be exercised, or to carry any weight, immediately after the operation of firing, unless as he exercises himself at liberty.

I have said, that the tendons are not capable of extension, and at the same time have allowed the possibility of their rupture. This may be very easily conceived of any inelastic substance. For instance, if a horse sets his feet badly on the ground, or places his leg in a false direction, at the instant of making a violent effort, he directs all his force on the lower insertion of the tendon; this latter part may be thus suddenly snapped asunder, and separated from the bone, while the rest of the tendon, and even the muscle, will have experienced no sensible degree of extension. This accident is easily known from the following symptoms: First, When the animal attempts to walk, he is able to stretch out his foot, to carry it forward, but he cannot possibly bend it backward; because the flexor muscles, having lost their fixed point, can no longer act. Secondly, For the same reason, when the tendon is examined, it is found in a state of slackness, from the knee down to the pastern, instead of it's usual state of tenseness. Thirdly, The horse feels acute pain when the fingers are inserted between the heels. Fourthly, A swelling is soon perceived in this part, which indicates a collection of humours; but it is of the utmost importance not to wait for this last symptom, because the collected matter is capable of making great havoc, particularly in the articulation of the foot, which, when once open, renders the case absolutely incurable,

and finally destroys the animal. The only remedy is immediately to unsole, and to make an opening in the fleshy frog, sufficient to bring the extremity of the tendon to view; upon this some proper relaxing ointment may be laid, such as the simple digestive; the use of which may be continued until a portion of the tendon falls off in the manner of an exfoliation, without which a cure can never be obtained. The wound is afterwards to be dressed with spirituous applications, as the tincture of myrrh, aloes, and the spirit of turpentine; but as it is impossible to get hold of and retain the extremity of the tendon, in the place of it's original insertion, that is to say, on the bone of the foot, we can entertain no hope of a perfect cure. The best we can expect is, that the tendon may adhere and unite itself to the bone of the coronet, which, however, confuses the mechanism of the foot; of course, the horse will remain for ever lame, but may still be of some use.

The foot-bone, or coffin, is also liable to fracture; this uncommon accident occasions a very painful lameness. The causes are nearly the same as those producing a rupture of the tendon, namely, a wrong position of the foot in the moment of powerful exertion, either in quick motion, or heavy draft. In such case, either the tendon may be snapped from the bone, or the bone of the foot fractured. It must be owned, that the fracture in
question

question is not easily discovered; the only symptom which tends to a discovery, is the swelling of the coronet, and the pain occasioned by pressing the part. But, previous to a determination, we must scrupulously examine all parts of the limb. If, however, we are confident of the rupture, the method of cure is extremely simple; it consists chiefly in drawing the soles, in order to prevent the bad effects of inflammation, by giving vent to the humours, which would otherwise produce great havoc within the hoof, and in keeping the animal perfectly still and quiet; and as the fractured bone is surrounded and confined by solid parts, and its motion besides extremely limited, nature will easily effect a re-union. At the expiration of three months, the horse may be sent to grass, for a short time; and, if circumstances will permit, may be moderately exercised upon soft ground, by which means a more perfect cure will be effected.

The bone of the articulation being contained within the hoof, and lying contiguous to the coronet bone, I cannot terminate this work, without saying something on the fracture of these bones. From their situation, they support the whole weight of the body, even in an oblique direction; and in every motion of the animal this weight must be equally distributed on every part of the articulated surfaces; and consequently any action which causes an unequal distribution of that weight, throwing

ing it suddenly on a single point, incapable of sustaining it, undoubtedly fractures the bone. This accident is not easily discovered in the coffin-bone, but may often be ascertained in the coronet, when the swelling is not great, by pressing the fractured pieces together, by which means a sensible degree of friction is produced. The reduction of these fractures is not in the power of art. It would be useless to attempt the application of a bandage; and as it is impossible to make a horse keep his leg up horizontally, as upon a chair, there is no other method than to abandon the cure to the agency of nature. The horse must be kept, if possible, in a perfect state of rest; at the same time anodyne poultices should be employed to calm the pain, the violence of which is able to create a fever, and even to create a suppuration in the affected parts.

I shall finish this subject with a few words on the very common accident called a prick in the foot. This may happen to the most skilful farrier in shoeing, while the nail is driving; either by the motion of the horse, or when the nail takes a wrong direction, from the hoof being too hard; in either of which cases the point, not being able to penetrate the wall, makes it's way into the parts which offer the least resistance. Sometimes the blade of the nail splits in two; one part of which is forced outwardly, while the other penetrates within. It also happens sometimes, that the nail meets, in driving,

driving, with the remnant of an old nail, which turns it out of it's direction, and drives it into the quick: this latter part, though not pricked, may be compressed by a weak nail, bent inwardly. In all these cases, if the nail be drawn immediately, no bad consequence ensues, even if blood should follow at the orifice; it will require no remedy: but if the nail should remain some days in the foot, an inflammation, and frequently a suppuration, takes place in the affected part. In this case, having ascertained exactly the seat of the wound, an opening must be made between the wall and the sole, deep enough to reach the bottom of the wound, and to bring to view the parts affected, and free issue given to the matter. The part must afterwards be dressed with spirituous applications, such as spirits of turpentine, tincture of myrrh, aloes, &c.

If the prick be of long standing, if the matter has not only affected the foliated substance, the fleshy sole, and the coffin-bone, but (which sometimes happens) has even penetrated to the coronet, not only an incision must be made into the upper and lower part, but suppuratives also, such as the simple digestive, mixed with basilicon, must be applied, in order to facilitate a discharge. If the matter should have affected the cartilage, the operation for a simple quitor must be immediately performed; which consists in separating the portions

tions of the cartilage rendered carious, or rotten, by the matter. If the horny sole seems partly separated from the fleshy, we must determine to unsole the foot; persuaded that the cure is infinitely more certain, and more speedy, when all the contaminated parts are exposed to view, than when the matter is permitted to burrow, and form other sinuses. It will be sufficient to repeat, that the bony, cartilaginous, tendinous, or aponeurotic parts are to be dressed with spirituous applications; the fleshy parts with the simple digestive, at first, and afterwards with spirituous, and the cure terminates by drying remedies.

Among the number of shoes mentioned in course, there are two of which I have only given the names, but which, on account of their utility, deserve particular attention; these are the scait-shoes, T and U. Let us suppose a case in which they are to be used. In a horse, for instance, labouring under a long lameness, the continual pain which he feels in the extremity of the limb, constantly obliges him to throw all the weight of his body on the sound legs, so that the lame leg is always in a state of flexion. The muscles, the tendons, and the ligaments, insensibly lose their action for want of exercise, the circulation is retarded in every part of the limb which is thus deprived of the nourishing juice intended for its support; a spontaneous contraction takes place in

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the organs, the effect of which is such, that it often happens, that, after curing the original disease, the leg remains strait, the fetlock is carried forward, and the horse walks upon the toe. When this accident is neglected, it will resist all the efforts of nature and art, and the animal will remain for ever lame. This it is easy to provide against, by the following method.

When we observe in the leg a propensity to remain in a state of flexion, and that the extension is not completed even when the weight of the body bears upon it, it must be held in the emollient bath three times a day, two hours each time; and in the intervals a poultice of the same nature, composed of emollient plants, applied to the fore-leg, from the elbow to the feet, and from the thigh to the foot behind; afterwards the horse must be shod as follows, with the shoes already mentioned. The end proposed by using this shoe, is to effect a progressive extension of the muscles of the affected limb, as well as a relaxation of the ligaments; by which means the parts may be brought insensibly to their natural situation. To obtain this end, the shoe, T, must be applied to the foot of the lame leg; which, by it's prolongation of the toe, determines the fetlock backward, and obliges the horse to bear more particularly on the heels. Afterwards apply the shoe, U, to the foot of the sound leg, which is raised in a small degree by means of

the three caulking of the shoe in question. Consequently, if the horse endeavours to throw the weight of the body on this leg, he is obliged to extend it. In this case, the diseased leg becomes too short; but as he cannot remain long in this position, he mechanically directs the weight of his body to the diseased leg; and the moment this leg reaches the ground, the other must of necessity bend itself. It is easy to conceive, by this double operation, that the extensor muscles reassume progressively their functions; and that the flexor muscles are so far extended, as to cause the parts of the leg to return to their natural situation and direction. The too frequent use of blisters, and firing, in this case, increases the evil, and renders it incurable.

I here terminate the lectures on the foot, and the art of shoeing, which I offer only as elements of the practice; and I shall esteem it a real reward of my labours, if any of my pupils should go beyond me, in the career in which I am engaged.

THE
POSTHUMOUS WORKS

C. V. DE ST. BEL.

PUBLISHED IN 1795.

GENERAL OBSERVATIONS

ON THE

ART OF VETERINARY MEDICINE.

1. **D**ISEASE is the lot of all organized bodies; of man, of brutes, and even of plants. It is a deviation from health, which disorders, in different degrees, the animal frame; and unless prevented, by some critical effort of nature or art, finally destroys the fabric.

2. Health, then, being the regular, free, and perfect discharge of all the animal functions; and death, on the other hand, being their entire extinction; we can form no other conclusion respecting the interval between the one and the other, than

than that it constitutes precisely what is generally known by the name of disease.

3. To prevent as much as possible the origin of those disorders in animals which do not arise from accident or contagion, by attaining to a knowledge of that kind of food and treatment which is conducive to health, and by adhering to it; to mitigate the violence of those disorders which reduce the value of animals, and also to endeavour to subdue and eradicate others, by every proper method, are the objects of the veterinary art.

4. This art is truly a branch of general medicine; for the very same paths which lead to the knowledge of the diseases of man, lead equally to those of brutes. An accurate examination of the parts of animal bodies, a studious survey of the arrangement, structure, form, use, and relation of these parts, and of their laws of action, and also of the nature and properties of their various aliments and remedies; those form, in a great measure, the sure foundations of all medical science, whatever living animal may be the subject of our consideration.

5. It is evident, therefore, that the branch of medicine styled veterinary, requires an extent of knowledge equal at least with any other branch; and we may venture to assert, without being wanting in that respect due to the medical faculty, that the veterinarian is in very many instances obliged to engage in more minute researches, and in longer
and

and more laborious investigation. He is not, like the practitioner in human medicine, limited to the study of one species; his art comprehends the care and preservation of every kind of useful animal. It is indeed true, that researches multiplied in the examination of different subjects, whose respective mechanisms all conspire to produce nearly the same effects, afford great advantage to the veterinary physician, by enabling him, from comparison, to throw additional light on many subjects.

6. If, in pursuing the fascinating track of investigation, we wish to avoid falling into error, we must studiously guard against the illusion of self-conceit, and of that presumption which seems ever to take delight in concealing from our reason the impassable line nature has drawn between herself and us. We must reject all speculative inference concerning the structure and functions of the different parts, however apparently well-founded, discard all prejudice and mere authority, and admit for truth that only which has been faithfully deduced from facts, and from steady, constant, and unprejudiced observation. In a word, we must guard ourselves against mere systematic opinions; which, though they impose for a while, will sooner or later submit to reason and experiment.

7. Principles confirmed by practice, and from which none but just and natural consequences are attempted to be drawn, can never mislead. An
accurate

accurate and quick eye, a ready penetration, a sound judgment, are qualities rarely concentrated in one person, though indispensable to eminence in physic or surgery. How exquisite must be the discernment and touch, to judge and determine, with a degree of certainty, the existence of particular diseases, their causes, seat, state, and progress; to draw from different appearances the proper inference, and, by analogy, among a multitude of varying symptoms, to anticipate the issue, and attain the proper means wherewith to subdue it.

8. Nor is less judgment required in our attention to every step of nature, when oppressed, in order to discover the method she designs to adopt for relief; or, if she fail in her indication, to urge her, by a seasonable interference, to discover it, and to second it, when attained, by every skilful aid; but if her indications are of an unpropitious nature, to endeavour to moderate and controul them. Thus, led by a cautious skill, we shall not interfere with what entirely depends upon nature, but confine ourselves scrupulously within the limits of art, so far as relates to her indications and her relief.

9. No one, therefore, who reflects, can be so absurd as to imagine that it is possible, without previous study, and a due course of investigation and experimental knowledge, to attain to the great ends

ends before mentioned. Without these medicine is an hypothesis, which neither natural endowment, nor mere instinct, can sanction; and of course liable to such perpetual error, as must lead to consequences the most dangerous. On the other hand, we are not to place implicit confidence in mere theory, in the grand questions of life and health, nor in practice alone; but in those solid acquirements only, which are the joint result of study blended with practice and investigation.

10. It is from this combination alone, that we can hope to obtain the solid effects and advantages of enlightened and successful science, which embraces all that is beneficial and consolatory to afflicted nature.

11. Unhappily for veterinary medicine, it is at present lamentably deficient in all these acquirements; yet, having equal access with his brethren of the faculty to the great mine of knowledge derived from philosophic and original investigation, the veterinarian may find not only substantial information, but be induced to open the wonderful page of modern discovery, so far as relates to the human structure: but, in pursuing his researches, he ought to use every caution not to graft upon analogy what may be productive of error; to guard against which, recourse must be had to actual experiment, to comparison and inference accurately made, and cautiously deduced.

12. From general observations, I shall now proceed to elucidate and confirm the necessity of a strict adherence to principles, by a short view of the present state of veterinary knowledge, farriery, cow-doctoring, &c. in Great Britain, from the best information I have been able to obtain.

As very many of the hereditary dispositions of a number of animals, of different kinds, collected for the purposes of agriculture, manufactures, and commerce, are, by being continually dispersed into countries where they were not bred, so altered, that it is not possible for any local data to be formed as to those diseases which seem to prevail in, and to belong to one county, and not to another; so neither can we account, with certainty, for their superior strength or weakness; or why the county of Suffolk should produce a short, close-made, strong, under-sized breed of horses, the size of which those of the midland counties nearly doubles; or why the counties of Durham and York should excel the rest for racers, hunters, and hacks. Neither are we better informed of their manner of breeding, the quantity and quality of food and water to which they have been accustomed, nor with precision the specific kind of labour to which they have been applied, or of the hereditary or prevalent disorders of the different counties; much less has there been any regular record of the general application and effect of veterinary medicine. All,

at this moment, appears obscured and bewildered, by the ill-placed confidence of the owners of cattle upon the blacksmith of the parish, upon illiterate and conceited grooms, stupid and listless shepherds, or upon a set of men infinitely more dangerous than all the rest, who, arrogating to themselves the style of doctors, ride from town to town, distributing their nostrums compounded of the refuse of druggists' shops, to the destruction of thousands, whose varied disorders they treat alike, without consulting nature or art, either about the cause or the effect.

Miserable animal! thou canst not complain, when to the disease with which thou art affected excruciating torments are superadded, by the unmeaning efforts of ignorant and illiterate men; who, after pronouncing a hackneyed commonplace opinion on thy case, proceed with all expedition to open thy veins, lacerate thy flesh, cauterize thy sinews, and drench thy stomach with drugs, adverse in general to the cure they engage to perform!

Opposed to this barbarian and obnoxious practice, let us turn our eye to that of the veterinary physician and surgeon. We shall see him, with a cautious eye and tender hand, survey and examine with discretion and judgment into the case before him; and, as far as he can obtain information from

those who bring the animal to him, we shall find him an anxious and patient enquirer; and if the case prove obstinate and intricate, accompanied by a vicious temper in the animal, far from being discouraged, his ardour is increased, and his zeal stimulated. If, however, he finds, after the most painful efforts, that he cannot ascend to first causes, he then guides himself by the most favourable indications he can attain; and he is sometimes so fortunate, by following half symptoms only, to overcome some of the most obstinate cases, though he could not reach the immediate source of the disease. This method of treatment is indispensable in most cases of epizootic contagion; more especially when it proceeds from the temperature and condition of the air, or from the vitiated condition of the herbage on which the cattle feed.

Judicious in the choice of his medical apparatus, and in the administration of drugs, he avoids the discordant medley, and pernicious receipts and treatment too often laid down in farriers' books; well knowing that the same drug, which acts differently upon different habits, cannot with propriety or use be administered to all alike. For want of this knowledge, the most salutary medicines have frequently proved pernicious; a dreadful effect, often produced by the tampering of an unskilful speculatist with the medicinal properties of drugs,
of

of the inherent qualities of which he is totally ignorant. In the beginning of a disease, the veterinary physician prescribes only those medicines which are mild in their effects, in order to gain a more clear knowledge of the constitution of his patient, and also that he may not occasion any unfavourable turn or change in the disease itself. He is governed by the temper and state of the air. He prescribes active medicines, where the muscular texture is feeble and inelastic, and the juices not sufficiently fluid; he pursues a different method, when there is more elasticity, and the fluids are more susceptible of irritation; varying his efforts according to the necessity of each case. He never provokes evacuations, until nature has had sufficient time for providing the proper matter to be evacuated, and that the passages are in an open and free state for such an effort: he guards against their taking place through improper channels; and that the operation of one should not interfere with those it may be thought right to promote at the same time in another part of the body. He is particularly attentive to critical evacuations, or efforts of nature, at some particular stages of a disease; and if she then appears too languid and feeble to perfect them, he co-operates with her by every aid in his power. He knows the different modes of treating acute and chronic diseases; his

skill assists him to divert or remove, from the vitals to the less essential parts, those disorders which might soon prove fatal to *them*, but not so to the other; and he adds a proper regimen, debarring the animal from all solid food, whenever it may, from the state of the disease, become corrupted by the fluids, which ought to contribute to a wholesome digestion, being unable to perform this salutary office.

It would not be lost time, if the student were to attain to a ready use of stenography, or short-hand writing; it would enable him to store up much information, whether of the documents of others, or of his own inferences and practice.

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AN

AN
 ESSAY ON THE GREASE,
 OR
 WATERY SORES IN THE LEGS OF HORSES.

*To which the Prize was awarded by the Royal
 Society of Medicine at Lyons.*

I wish that every one would only write what he knows, and as
 much as he knows. MONTAIGNE.

THE grease is in general a cutaneous, chronic disease; sometimes inflammatory, sometimes infectious and contagious: it invades the legs of horses, asses, and mules; but seldom attacks those of the ruminating species.

It's first symptom is an obstruction either in the coronet, the pastern, or fetlock-joint, attended with degrees of pain. The animal is compelled to raise the affected limb suddenly, as though touched with something sharp. If these irritations are not mitigated in this stage, they soon produce a grey or green foetid discharge, which, oozing through the skin, excoriates wherever it is suffered to lodge, and adds to the inflammation of the affected part. In this second stage, the inflammation and obstruction

tion generally rise upward, spreading sometimes as high as the knee and hock; the animal then becomes lame; and if put to work, a thin ichorous matter, tinged with blood, oozes from the parts affected; the running humour assumes soon after a consistence, and becomes unctuous, and greasy to the touch. If the disease affects the coronet, it makes the horn of the hoof grow, rendering it at the same time soft and spongy, sometimes unfolding and separating the hoof from the crown, and too often destroying the frog: the stubbed hair, called the bristle, falls off; shewing the skin sometimes of a dead white, at others of a livid colour, and full of little bladders; many of which becoming confluent, soon form ulcers, in part covered with granulated flesh, resembling a fungus, called by some warts, grapes, &c.; others, still more confluent, resemble the outward coat of a pine apple, or a honey-comb.

If this disease, however, appear upon the coronet, it may be more properly denominated the crown-scab; on the heels, an ulcerated frog; upon the fore-part of the pastern-joint, a quitor; along the tendons, rat-tails; and mallenders and fallenders, when on the joints of the knees and hocks. These ulcers often allure flies in the summer and autumn, from the eggs of which proceed maggots, which add a stimulus to the disease; and, by making deep chaps, whence issues a purulent
discoloured

discoloured matter, attended by a steam of so volatile and acrimonious a quality, that, by itching, it torments the animal almost to madness, and corrodes and destroys the integuments over which it runs as powerfully as the most active caustic. In this stage of the disease, it is very difficult to cure hurts of any kind in the feet or legs. Lastly, the increase of these sanious humours gradually distends the skin; the discharge becomes so abundant, that every hair serves to convey, in large and successive drops, a brown or bluish liquor, the intolerable stench of which pollutes the surrounding air, rendering the road, pasture, or stable, not only offensive, but even infectious: such noxious stench is characteristic both of the grease and farcy, in their last stage. The leg now becomes an inflated cumbrous mass of disease; it's motion is limping and inflexible, from the anchilosis which seems to take place in the joints; the bone-spavin ensues, and the next limb partakes in some measure of the disease: the animal wastes; and, although the appetite still remain, he is long useless, before he is entirely worn out by the disease.

The hinder limbs are more frequently the subjects of this disorder; and though the foregoing description of it embraces it's general progress and symptoms, yet the veterinarian must expect to encounter many appearances which materially differ in different circumstances and constitutions. The

following data, however, I conceive, will generally hold good:—that the disease must be deemed chronic; that it never reaches it's last stage before three months, seldom before nine, and that sometimes it continues much longer.

Such is too often the progress of this loathsome disease, from the accumulated weight of neglect and unskilful treatment, from the indolence of the owner, and the injudicious and slovenly attempts of the empirical blacksmith called a farrier. This latter but too often opposes the disease by violent astringent and desiccative applications, and sometimes even with oily substances, which choke up the pores, bring on lameness, dry spavins, foundering, excrescences and tumours in different parts of the body, the mange, and confirmed farcy; thus producing a greater evil than the one he rashly attempted to cure. From hence also cedematous swellings of the belly, abscesses in the neck, fistula and pole-evil, diseased viscera, water in the lower belly, chest, or brain, staggers, peripneumony, discoloured urine, inflammatory gripes, spasms, abscesses in the chest and belly, convulsive twitchings, partial palsies, glandular and painful swellings in the lower jaw, whence proceeds that yellow, green, and bloody matter discharged through the nostrils, which are soon after deeply corroded; the anginis, or chronic cough now ensues, terminated by fever, the glanders, marasmus, and death.

Upon

Upon dissecting the bodies of animals which had died of maladies originating in the grease, I have in general found them wholly lean and emaciated; the viscera of the lower belly dry, and full of obstructions, more especially the mesentery and pancreas; the liver schirrous and rotten; much hard excrement in the great intestines; the small guts contracted, and sometimes containing whitish worms; the stomach corroded by bots; the lungs affected, and covered with tubercles filled with chalky matter; the pituitary membrane spongy, and full of yellow foetid mucus; the cavities of the head and nostrils filled with the same purulent matter. These appearances, supposed peculiar to the victims of the farcy and glanders, I have uniformly found in those falling by the grease. The skin of the limb affected has been much thicker than natural, loose, spongy, and perforated in several places; the cellular texture of it completely rolled up, appearing like hogs-skin; very hard, and adhering to the sheaths of the tendons; full of yellow foetid matter; the blood-vessels varicose, and much dilated; and when the disease has been inveterate, I have observed the yellow matter about the skin to be more thick and foetid, the bony substances to be softened, and more of the pastern and coronet affected with exostosis, and the cartilages of the coffin-bone inclining to ossification.

The causes of this disease are either external or internal. The former may arise, first, from the nature of the ground whereon the horse has fed; and therefore the Dutch, Flemish, German, and English horses are more disposed thereto than those bred in dry elevated countries, where the malady is scarce ever found.

In general, coarse and hairy-legged horses, or of a lax and phlegmatic habit of body, which have been bred and fed in rich and marshy grounds, are most subject to it. The other internal causes are, the strangles, vives, &c. not properly treated and cured, but checked, and repelled into the habit; inflammatory and cutaneous eruptions repelled; the negligent treatment of brood mares on the reflux of the milk into the blood, upon ceasing to give suck; foul nourishment; excessive labour; long and injudicious use of sudorifics, and other relaxing medicines; frequent and over-purging and bleeding; too much fat, and want of exercise, worms, cachexy, dropfy, &c.: in fine, whatever tends to relax too much, to impoverish, or cause a stagnation of the fluids.

The external causes are equally numerous. Whatever suddenly checks perspiration, as change of weather; the rain and snow of winter nights; washing the legs in cold water, while hot from work; confined, damp, and crowded stables; stand-
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ing on foul litter, and want of due dressing and cleanliness; clipping the hair from the legs and pasterns close to the skin in the winter, or, what is worse, plucking it up; wounds, unskilful blistering and firing, and also feeding with grains.

Mares and geldings are more liable to the grease than horses, but with the latter it proves violent and obstinate. The cure is more difficult in young and old, than in middle-aged horses. I have observed in old horses a greater degree of inflammation and of pain than in young ones; arising, perhaps, from want of elasticity in the solids, either from the hard labour they have performed, or the debility attending the approach of old age. A heavy gross-bodied horse, which inclines to sleep standing, with a large head, and greedy after water, is commonly subject to the grease. It prevails most in winter and spring, in great towns, more than in the country; and in great cities, such as London, Paris, Amsterdam, and Bristol, is certainly contagious, spreading more in wet, than in dry and frosty weather.

The cure is certain enough when the animal is young, of a good habit, and the malady external.

If the subject be too full of blood, the case recent, yet attended with pain and lameness, begin by bleeding; put him upon a judicious diet of mashes and white water, blood warm; in this last
you

you may give nitre, made palatable with honey or gum arabic; inject a warm clyster of the decoction of bran or mallow-roots; cut off the hair, and then cleanse the parts affected with fuller's earth, finely powdered, and beat into a soft paste, with a small quantity of Venice turpentine, hog's lard, and the lees of red wine, or the grounds of strong beer; put this paste pretty thick, in the form of a plaister, upon the sores, so that the whole of the affected part be well covered; let it be first covered by a thick coat of tow, and then by proper rollers, and remain at least twenty-four hours: when this dressing is taken off, wash the sores with great care and tenderness quite clean, with warm milk and water, then apply the turnep-poultice, into which put a proper quantity of the extracted juice of saffron, and the juice of pounded house-leek; continue this until the running becomes more mild, which will generally happen in a short time; when you may allow the horse his usual meat, and begin to use the vegeto-mineral water, made warm, but without spirit, to the sores; moderate exercise must also be given, and a smart purge, followed by diuretics. In a day or two, if the sores look promising, and the offensive smell and ichorous discharge are abated, the vegeto-mineral water may be made stronger, and assisted by brandy, or brandy-whey; which last is made by boiling equal quantities of milk and water, and

adding brandy, till it is turned quite clear. Continue the turnep-poultice, repeat the purge and diuretic for at least once in ten days, during three weeks; and lastly, foment the legs all over with flannels, dipped in a decoction of camomile, alder leaves or bark, rosemary, red rose leaves, and colts-foot. Rowels, and setons, in the chest, and inside of the thigh, are used with success. A necklace, or collar, must be applied to the horse's neck, to prevent his tearing off the dressings. Upon removing the poultice, and restoring the horse to his usual labour, be careful to guard the sores with tow, wetted in the goulard water, and secured upon the part by a cloth, or soft leather; and lastly, by tow dipped in tincture of myrrh, instead of goulard. If a stiffness in the joints, or lameness should remain, arising from obstruction, rub the legs well several times a day with warm flannels, but so as not to fret the skin. If the horse be old, and this method should fail, let the parts affected be fired, and the horse turned out after a proper time. Here let me give a caution against the use of those astringents and repellents so much in vogue with common horse-doctors: by their drying qualities, they throw the humour back into the habit, thereby vitiating both the solids and fluids; and too many, after having been amused with the hopes of a cure, to their cost have found the disease return either with a double degree of violence, or in a more formidable shape.

Sometimes

Sometimes purges fatigue too much; I then substitute diuretics, or sudorifics; sometimes the milder kind of openers, such as the bolus of the powder of the woods of gentian, elecampane, or sulphur, preparations of steel, antimony, or the resins made up of liquorice-powder, wheat flour, treacle, or honey, into balls; and at times, but with great circumspection, mercurials. If, however, a small drain or running should remain at last, do not dry it up by violent applications; it will assist nature, in which she must be aided by the care and cleanliness of the groom. For the cure of rat's tails, mallenders, and fallenders, frequent dressings, made of Burgundy pitch, common frankincense, tar, diachylon, and quicksilver, rubbed well down with Venice turpentine, must be applied. Thus also dress the deep chaps or furrows in the pastern, and round the coronet; clearing them well from dirt with soft linen or tow; but if the lips of the chaps appear livid, lay into them some pledgets of tow well soaked in the aloetic tincture of myrrh, for a day or two, and then apply the above plaster. In case of warts round the foot, cut them off, and apply a styptic of vitriolic acid, or the like. When the bleeding is perfectly stopped, touch the roots with the actual cautery, or the lunar caustic, butter of antimony, solution of arsenic, or the like. If the wound be large and sore after the eschar is stuffed off, dress with the burgundy pitch plaster; but if otherwise,

otherwise, with the common diachylon only: this treatment must be repeated according to necessity. The nitrous acid, with corrosive sublimate dissolved in it, and the concentrated mineral acid, are very powerful in these cases, but require skill to prevent the inflammation sometimes raised by them.

If the grease has, from it's virulence, softened the hoof, or the heels and frog, so as to threaten a canker, take off the shoes, cut the quarters down, and the heels quite flat, and put on the shorter spectacle shoe, T, that the frog may bear upon the ground. In this particular part of the malady, I have known the ægyptiacum alone perform a cure, but it will be more certain with the use of the pitch plaister. The use of the relaxing system must not be too long continued, lest it bring on a tribe of different ailments, and nervous disorders.

If, during the cure, an unexpected stoppage of the humours should take place, together with a loss of appetite, dislike of food, dulness, trembling, &c. it may be feared the humour has reverted to the internal parts of the body; and then every effort must be used to bring back the refluxing humour to the skin, by immersing the animal in a warm bath, either of simple water, or medically prepared, with herbs or salt; frictions with brushes, hair-cloth, and flannel, all over the body, both when in and out of the bath, must be used; and aromatic and supporting drinks, such as Huxham's tincture of bark,

bark, in mulled wine, or other proper cordials, administered, making constant use of the pitch plaister to the limb. But if, instead of obtaining a running from it, an abscess should form in the flesh, encourage it by a plaister of the warm gums, and every other means: these tumours, being almost always critical, will soon suppurate, and bring about a radical cure. Beware of over-haste, and cautiously avoid every obstruction to the indications of nature; give her time, and you will commonly succeed. If the grease proceed from worms, cachexy, farcy, &c. these disorders, of course, must be previously cured; and the grease, being only symptomatic, will generally yield to the same remedy which cures the original disease.

Having asserted that the grease is sometimes infectious, and at others contagious, permit me to offer a proof in two remarkable instances. About the year 1770, some cavalry, in their route to Lyons, in France, stopped at Chalons and Macon. In the latter town, a muleteer, whose mules had been severely afflicted with this disease, was obliged to admit into his stables too large a number of the dragoon horses. The building was nothing but a narrow, confined, damp hovel, situated in a bottom. The serjeant-farrier, not suspecting the fatal consequences, suffered the horses to remain in this crowded situation, separated from the diseased mules only by a rail, during their stay in the town.

On

On their quitting Macon, some slight symptoms appeared: the usual treatment followed; but such was the virulence of the disease, that not one horse which had stood in the muleteer's stable, nor the horses which were afterwards stalled with them at Lyons, escaped: to such an alarming height did it extend, that we were obliged to draft every diseased horse from the troop, and send him to the hospital, before the ravages could be stopped.

I shall now state as remarkable an instance of contagion. By the long and heavy rains which fell the latter end of last summer, in the district of Lyons, after a long continuance of dry and sultry weather, the pastures were so saturated with wet, that in many places large sheets of stagnant water were formed. These rains being followed by a return of hot weather, accompanied by a soft southerly wind, the exhalations soon became so noxious, as to overload the air. The harvest and vintage were over; and the people, rejoicing at the change of weather, had incautiously suffered their cattle to be abroad by night. I shall say nothing of the putrid malady which raged at the same time, and from the same cause, among the human species. The governing disease which afflicted the horses, mules, &c. was the grease; rapid in it's progress, and fatal in it's effects. The whole atmosphere seemed tinged with a putrid vapour; men fell by hundreds, and animals by thousands: the contagion spread;

spread; nor did this column of mischief abate its virulence, till dispersed and destroyed by the purer atmosphere of the Mediterranean, and by a shift of wind, which brought a more pure and elastic air.

In such cases, a most exact and unremitting attention to cleanliness is absolutely necessary. Vinegar should be sprinkled in the stables, and the racks and mangers frequently washed clean from the mucus and flaver that adheres to them, with hot water mixed with vinegar. Nothing is of greater importance to the health and recovery of animals, than a constant succession and free course of pure air throughout their stables. Exercise and good dressing, with the curry-comb and brush, hair-cloths and flannels, should never be neglected; nor will it be unuseful frequently to bathe the inside of the thighs to the top, and both sides of the fore-arms to the chest, with vinegar and water.

EXPE-

EXPERIMENTS AND OBSERVATIONS

MADE UPON

GLANDERED HORSES.

THE glanders, or that obstruction and corrosion of the lymphatic ducts and fluids in animals which do not cleave the hoof, is a disease hitherto incurable. M. la Fosse is an author much celebrated for his minute and laborious researches into the cause of this disease. He has divided it into six classes, and endeavoured to support his reasoning upon them all, both by experiment and analogy, without, however, leaving us much to rely upon; and we are still ignorant of the nature and cause of this specific virulence, and totally at a loss as to any certain method of cure.

Notwithstanding these discouragements, I shall endeavour to trace the nature of the virus, and shall at the same time shew it's material difference from the strangles, and other diseases of the glands.

The virus in the glanders attacks all horses indiscriminately which are exposed to it's contact, some few excepted; but in different degrees, according to their age, food, condition, labour, and
local

local situation. Young horses, from the delicacy of their organs, are most subject to it; those also fed in the stable, upon too succulent and mucilaginous plants, are more liable to it than such as eat dry food, or graze. Fat horses catch the disease much sooner than lean ones; those also which are confined in low and damp stables, without a free air, often fall victims to it. The horse is more liable at rest than at work; but such as run abroad are seldom attacked.

The infection may be received by the breath, the pores of the skin, the food, or drink; it may be received by one animal rubbing against another, or by a sound horse eating the flavered food; but not by water, unless the virus be swallowed with it; neither by inoculation. Diseased stables, foul racks and mangers, and litter upon which a tainted horse has lain, will certainly infect a sound animal. The infection is sooner caught in summer than in winter; and it is more contagious in the southern than in the northern countries.

The virus, when working it's effects within, and before the running appears, produces no visible change in the animal œconomy. The pulse does not vary, the secretions are regular, the animal does not appear depressed, he does not cough, breathes free, and for the most part preserves his appetite and condition. When the pituitary membrane begins to be inflamed, and the discharge commences,

commences, no other symptoms of the disease are yet observable; it is only when the virus begins to affect the membranes, the bones, the lymph, or crasis of the blood, that a decline is visible. As to the duration of the disease, there is no fixed period; the horse may be afflicted with it from three months to three years, and even longer. It is obvious, at the same time, that the virus, in the last stage of malignancy, is proportionally active. There are some, but very few horses, which are able to resist the infection altogether.

Notwithstanding the assertion of La Fosse, I believe there exists only one sort of glanders. It operates according to it's local situation, and the habit of the patient; our knowledge, in point of natural history, extends no farther. Classing divisions and subdivisions of diseases, have occasioned the admission of many errors into general medicine; we should therefore throw aside whatever is not supported by proof, and avoid all hypothetical systems.

The seat of the disease is by some placed in the pituitary membrane; by others, in the lungs, the lymph, and the external parts of the body. I shall only observe, that if the glanders be caught by the breath or food, I cannot conceive why it should stop at the pituitary membrane, without going down the windpipe and the bronchias; nor do I see any reason why it should not fix upon the lungs.

lungs. If the absorbent vessels really exist, can we prove that the virus does not penetrate into the circulation? That it really penetrates thither, is agreeable to the principles of sound philosophy; and in course passes through the whole vascular system, vitiating the blood and humours in it's course. It is reasonable to conclude, that the poison, circulating through the mass of humours, particularly affects and injures the lymph; that nature provides it a passage through the pituitary membrane; that the morbidic humour, flowing upon this membrane, irritates, corrodes, and inflames it, producing ulcers; consequently, we are to consider the membrane as an emunctory destined to throw off the morbidic matter, not as the seat of the disease. According to this opinion, topical remedies are insufficient; they go to the effect only, not the cause; they are still more inadequate when the lymph or the lungs are affected, which I have often found to be the case.

I shall first give an account of the anatomy of the parts more immediately affected by the glanders; because, without a knowledge of their structure and situation, it is impossible to distinguish between diseases that are accompanied with many outward symptoms exactly similar; and a practitioner may be liable to form very erroneous and dangerous opinions.

The Nose and Pituitary Membrane described.

The great cavity of the nose is formed by the union of the maxillary or cheek-bones, and the bones of the nose, properly so called. This cavity is divided by a cartilaginous partition, (which ossifies in it's upper part, in old horses,) separating the internal parts into two equal cavities, in which are observed three sinuses, namely, the frontal, the maxillary, and the zygomatic; and four protuberances, like horns, two on each side, called upper and under horns. In these different cavities the infectious matter is collected, in the glanders, the strangles, and such diseases. It is of the utmost consequence, therefore, for the veterinarian to have a perfect knowledge of the structure and situation of these sinuses, in order to ascertain, at first sight, on what part of the surface the operation of trepanning (if necessary) ought to be performed, without the risk of breaking their partitions.

The pituitary membrane lines the cavities of the nose, the sinuses, and horns, in their whole extent. It is of considerable substance upon the cartilaginous partition, but is thinner over the horns, and within the sinuses. It is composed of nerves, arteries, veins, and excretory vessels; which proceed from a multitude of glands, in which it abounds. It's nerves are branches of the olfactory nerves, and constitute the organs of smelling.

The arterial vessels proceed from a branch of the inward upper carotid artery, and the veinous vessels united flow together into the jugular. In it's natural state, this membrane is constantly moistened and lubricated by a mucilaginous liquor, which defends it from the impression of the air, from over-dryness, and consequent inflammation.

A want of fluidity in the blood and lymph, and the irritation of the nerves, by producing a contraction of the vessels, occasion obstructions in the pituitary membrane. A relaxation of the texture of the membrane occasions a stoppage of the fluid, and also produces obstruction. The inflammation, which follows obstruction, is always in proportion to it's cause; thus, if the cause be local, the inflammation may end in a resolution of the obstructed humours; if the cause be remote, it is difficult to prevent suppuration of the membrane, especially where the ulcers are become cancerous.

Of the Discharge through the Nostrils.

The simple inflammation of the membrane produces a discharge of limpid matter, sometimes slimy, but always transparent in the beginning. If the inflammation increases, the stagnated humours become corrupt, and turn to thick white matter. If it lodges in the sinuses, it becomes corrosive, at-

tacks

racks the bones, lacerates the blood-vessels, and produces a discharge of a yellowish, green, or bloody appearance. The discharge from the nostrils may proceed from various causes, which it is of consequence to distinguish, that the glanders may not be confounded with other diseases.

The slimy, whitish, and yellow matter, discharged in the strangles, resembles that which appears in the glanders. If the strangles are bad, and the inflammation excessive, the matter will sometimes corrode the membrane, and produce ulcers similar in appearance to those in the glanders.

If the strangles are imperfectly cured, a metastasis frequently takes place; the humour fixes on the lungs, and forms an abscess.

A violent cold will occasion a discharge from the nose, which, if neglected, will in time acquire a consistence like that of the glanders. Chest-founding, and a confirmed consumption, will be attended with the same effects. The latter being always a consequence of some other disease, is usually attended with great inflammation in the pleura and lungs, ending in a suppuration of those parts, which is ejected at the nostrils. The virulent discharge of the grease and farcy occasions consumptions, by fixing on the lungs, &c. A running of the nose, from either of these causes, is always fatal; I have even seen it, in the hospitals, become contagious.

A running at the nose, as has been said, is the first external symptom of the glanders: as the disease increases, the discharge appears more thick, tinged with yellow, green, and bloody ichor, &c. such as attends the above diseases; consequently the colour of the matter cannot be looked upon as a certain characteristic of the glanders, since it is common to the others. I shall therefore endeavour to point out the characteristic signs and symptoms of each disease; and first of the STRANGLES.

All horses are by nature exposed to this disease, between two and five years old. The first symptoms are, a quick pulse, heaviness, loss of appetite, and a cough. A swelling soon after appears upon the glands of the under jaw. The parotid, maxillary, and salival glands, are equally swelled; the lymphatic glands but seldom.

A violent cold, the sleepy staggers, and lethargy, are the consequences of a checked perspiration, particularly in the head. In this case, there is a reflux of the humours to the inward parts, and towards the pituitary membrane. The symptoms of it are a heat and dryness of the skin; the pulse at the temporal artery, and the outward maxillary, is tight and deep; the horse coughs, is dull, and has no appetite.

The symptoms of a chest-founder are, violent fever, hanging down of the head, distaste of food, difficulty of breathing, frequent cough, &c.

The

The pulmonary consumption begins with a hectic; and a cough insensibly increasing, the horse has some appetite until a certain period of the disease, when he wastes rapidly, and death soon follows.

The symptoms peculiar to the GLANDERS are, that the virus, in most cases, does not produce in the beginning any sensible alteration in the animal œconomy; the horse has no fever, dulness, or distaste to food, but the animal functions are all regular; it is precisely this apparent state of health, attended by a discharge from the nostrils, which confirms the existence of the glanders. The obstruction of the lymphatic glands is also a certain token of the virus of the glanders; but, in order to ascertain the fact, it is necessary to know the anatomy of those organs, their situation, functions, and connection with the pituitary membrane.

These glands are situated under the tongue, one on each side, within the branches of the under-jaw. They receive all the lymphatic vessels that issue from the pituitary membrane, and give rise to a channel out of them, which reaches the wind-pipe: behind this, it descends to the chest; and from thence empties itself into the left subclavian vein, near the insertion of the thoracic duct. Thus it follows, that these glands must of necessity be obstructed, when the pituitary membrane is ulcerated, because then the viscous and thick qua-

lity of the lymph obstructs the circulation of the glandulous body. The hardness and insensibility of the glands in this disease, justifies the supposition that the virus contains some noxious and active effluvia which condense the humours.

When the discharge is only through one nostril, the gland on that side alone is obstructed; because the lymphatic vessels which correspond have not yet been attacked by the matter, and the lymph not yet been completely infected. If, on compressing the glands between the fingers, an elastic repulsion is felt from the center of the gland, and the animal shews sensibility of pain, the disease is not the glanders; because in that case the glands are hard, and quite insensible.

*Experiments made at the Veterinary School at Lyons,
by M. St. Bel, whilst Professor there.*

The inhabitants of Lyons are obliged by law to give information to the college of all glandered horses in that city, and the adjoining country; the professor had, of course, daily opportunities of making experiments, being at liberty either to kill or preserve the horses, for the instruction of the pupils. The following accounts were extracted by the professor from the journals which he had kept.

Expe-

Experiment I.

Three horses, with the confirmed glanders, discharging copiously at the nostrils, one seven years old, another eight, and the third eleven, were all put in the same stable, under the following course.

1st, They were bled in the jugular vein.

2dly, An injection was thrown up the nostrils, of lime-water, vinegar, and salt, and repeated twice a day.

3dly, Their food was reduced one-third, and their drink, white water.

4thly, To each were given six drachms of kermes mineral, three of camphor, made into a bolus, with flour and honey. This was continued to the seventh day.

On the eighth day they had, in two doses, (morning fasting, and night,) a quart of red wine, saturated with regulus of antimony. One of them began to purge on the ninth day, at five in the morning, and it was over by three in the afternoon; the second had frequent provocations, without voiding at all; the third was no way moved by the medicine. On the same day, they were injected with spirit of wine and water, in which copperas and gall-nuts had been infused. On the tenth, the injection was repeated; on the same day they again took the bolus. On the eleventh, no medicine was given. On the twelfth, the running of the nose

was somewhat abated in all three, but the pituitary membrane appeared more inflamed: the bolus was given.

On the thirteenth, their food was reduced to half the quantity, white water given in abundance, and with an emollient clyster to each.

On the fourteenth, the wine and antimony repeated. On the sixteenth and seventeenth, injections repeated. On the eighteenth, nineteenth, and twentieth, injections and bolus. The discharge much diminished in the first and second horses, but abundant in the third, though at one nostril only. The lymphatic glands in the same condition. The bolus and injections were continued to the twenty-fourth. On inspection, their urine and dung indicated great heat in the blood, and the course of medicine was suspended till the thirtieth, plenty of white water being allowed in the interval. On the thirty-first, the urine and dung appeared in a healthy natural state. On the thirty-second day, the bolus continued, with injections made with allum and white vitriol mixed together over the fire, afterwards reduced to powder, and dissolved in lime-water, with a sufficient quantity of vinegar. The two following days, the injections repeated twice a day, and the bolus continued. Thirty-fifth, the running disappeared in one of the horses. Fortieth, the running ceased in the second: the bolus and injection were continued every

every other day. The general treatment continued with the third to the fifty-fifth day: the running ceased in him also, after two months from the first beginning. Medicine was now discontinued. The glandular obstruction was also removed in one horse, and very little of it remained in either. This appearing to be only a secondary effort of the disease, and judging that the resolution was only in the conglobated glands, I imagined that time would complete the cure. Every thing seemed to promise it until the seventy-second day, when the running commenced afresh in one, and in three months more it re-appeared in the others, and in all of them more violent than ever. The two first were killed for investigation. The frontal and maxillary sinuses of both were filled with purulent matter: the pituitary membrane was ulcerated, whence it appears that the injections had not penetrated into the superior cavities. No marks of inflammation appeared on the back-part of the mouth, the wind-pipe, the bronchias, or the lungs; all the other parts were in their natural state. The third was afterwards killed; and, upon dissection, the frontal, maxillary, and zygomatic sinuses were found to contain much bloody matter; the membrane was much ulcerated, the bones carious, and the lymphatic gland on the right side was become schirrous. Five vomicas, of the size of a pigeon's

egg, were found in the right lobe of the lungs. No other parts were affected.

Experiment II.

Two hacknies, the one Spanish, the other Navarese, the first nine, the other seven years old, both in the confirmed glanders, were put under the following regimen. They were restricted to a low diet for two days, and let blood the third. The fourth day they were trepanned; the Spaniard on the left side, because the discharge was only there; the other on both sides. They were then injected through the openings with a cleansing decoction of barley-water and honey. The lime-water injections, and occasionally others, with the addition of allum and white vitriol, spirits, copperas, and gall-nuts; together with drinks, of each four quarts of the second lime-water, sweetened with honey; and, some time afterwards, two quarts per day each of a strong infusion of chamomile, were continued to the sixty-sixth day, when the runnings had almost disappeared, both horses were in good spirits, and ate and drank as usual. They had an hour's walking exercise every day.

The Spanish horse continued apparently well until about a month after, when the running appeared again, bloody and foetid. He was then killed. On dissection, the pituitary membrane appeared corroded, particularly on the right side;

the superior horn was almost destroyed, and the lachrymal duct choaked up with purulent matter. The brain was in it's natural state. The viscera of the abdomen were sound. Part of the interlobular texture of the lungs had abscesses, but the matter had not penetrated the bronchias. The lymphatic glands contained a concreted humour.

The Navarese was to all appearance in perfect health, from the beginning of June to the end of August. At that period the running again took place, and in the space of three weeks became so virulent, as to render it necessary to kill the animal. On opening him, the membrane proved to be ulcerated in a great extent of it's surface; the cartilaginous partition was attacked by the matter, but the sinuses contained very little. All the intestines appeared sound.

Experiment III.

A large cart-horse, ten years old, having the lymphatic gland on the right side much obstructed, hard, and insensible, the membrane ulcerated with a discharge of yellow foetid matter, was put upon the following course. He was dieted with bran and white water for two days, and bled twice; on the third, trepanned and injected into the nasal foveas and sinuses with a strong decoction of wormwood with honey. The injections also with the first and second lime-water were used; and three

drachms of æthiops, incorporated with honey, and afterwards the bolus, with the addition of a drachm of æthiops mineral, were given, until the forty-first day, when the running was almost suppressed, and the size of the gland considerably diminished. On the fiftieth, the running ceased. The sixty-first, all medicine was discontinued, and the horse gradually brought to his usual food. He was placed in another stable, and walked out every day, in an inclosed place. His former stable was well washed, and fumigated with brimstone, gunpowder, spirit of vitriol, and juniper berries. After all, however, the running at the nose returned at the end of three weeks, and then the animal was killed. On opening him, the membrane was found ulcerated in three or four places only. The bony substance was attacked in one place. The sinuses contained much yellowish matter, mixed with bloody filaments, produced by the dilaceration of the small vessels. Part of the villous membrane of the stomach was slightly inflamed, the cardiac orifice a little more so, also the slender intestines; the left lobe of the lungs was inflamed, and filled with black thick blood, which might be occasioned either by the æthiops mineral, or the virus of the glanders.

Experiment IV.

Two Danish coach-horses, the one seven, the
3 other

other eight years old, the first in the confirmed glanders, the other in the first stage only, were put in separate stables, under the following course. They were kept without hay, upon bran and white water, for some days, and were then bled in the jugular, and emollient clysters given. An injection was used, composed of mallows, pellitory, elder-flowers, and chamomile. On the thirty-sixth day the first horse was trepanned, and the cavities injected with lime-water. He took a bolus, composed of four drachms of mercury, and as much cream of tartar, with honey. The other had a bolus of two drachms of precipitate, with honey. The injections, clysters, and boluses were regularly continued (with some occasional suspensions, when the evacuations were too great) until the sixty-fifth day. In the first horse, the running appeared and disappeared at intervals; and at length became constant, and of a bad sort. He fell away rapidly, and it was thought proper to kill him. On dissection, nothing particular appeared, but an infinite number of little ulcers on the pituitary membrane. The sinuses contained but little matter. The other horse appeared radically cured; but in these matters a single fact cannot establish any thing.

Experiment V.

A saddle-horse, seven years old, newly attacked by the glanders, as was said, was treated exactly in
the

the same manner as the last mentioned, but without the same success; for, after three months perseverance, he was obliged to be killed. The pituitary membrane was found ulcerated, but nothing else.

Experiment VI.

A Limousin hackney, nine years old, with the confirmed glanders, was put under the same course, for ten weeks; in which time the medicines had worked no good effect, all the usual symptoms were aggravated, and the horse expired. On dissection, besides the usual appearance, it was perceived that the running proceeded in a great degree from the lungs, within which a collection of foetid matter was found, arising from ulcerations. It appeared probable that the case might have been mistaken, and that the horse had died of a consumption; the elucidation of which was left to farther experiment.

Experiment VII.

I embraced the first opportunity of making trial of the supposed virtues of the æthiops mineral, and periwinkle, in the glanders. Three glandered coach-horses, aged, were put under the following course. They were prepared in the usual manner, and then purged with one ounce of aloes, two drachms of sweet mercury, two of jalap, and two
of

of cream of tartar, mixed up with honey. They purged well. The third day they took an ounce of æthiops mineral, and an ounce of powder of periwinkle. They were trepanned and injected, as before, and the medicines given at proper intervals, with the substitution, in one or two instances, of nitre in the purgative, instead of jalap, during seventy to ninety-six days; in which period two of the horses were killed, as incurable, and exhibited the usual appearances, on dissection; the third was returned to the owner, seemingly cured; who however sent him back at the end of two months, with every symptom of confirmed glanders. Many new cankers were discovered in the pituitary membrane, and many which had been cicatrized by the injection; which seemed to prove that the seat of the glanders is not local, but exists in the mass of humours.

Experiments VIII. and IX. contain nothing particular.

Experiment X.

An English hunter, and a Neapolitan manage-horse, aged, having the glanders, were both put under a course of salivation. The hair was shaved from the neck down to the buttocks, and as low on each side as the middle of the body. Emollient fomentations were first applied all over the
body,

body, for a week ; afterwards, an ounce of mercurial unctiōn was rubbed into the buttocks, and continued every other day, for twelve days. The quantity was afterwards increased to an ounce and half, and rubbed into the rump, and from the withers to the loins. The salivation was abundant ; sometimes too violent. Water with nitre was occasionally given, &c. ; but after from fifty to eighty days' trial, the glanders had increased in malignity, and the horses were killed.

Experiment XI.

Volatile alkali, or spirit of sal ammoniac, mixed with infusion of angelica root ; the horse being kept warm cloathed ; emollient clysters, injections, &c. were tried. The patient appeared cured, and was in consequence turned to grass ; but in two months the disorder returned, and he was killed.

Experiment XIV.

A large swift horse, seven years old, having the confirmed glanders, was treated as follows. Dieted and purged, as before ; two days after, an incision was made in the chest, into which was introduced half an ounce of corrosive sublimate, which produced a temporary choaking. The running of a reddish serosity (common after such an operation) became very abundant in a few days ; the horse being

ing fat, and full of humours. Injections of lime-water were used, and a ball given, for six weeks, composed of liver of sulphur, half an ounce, incorporated with two ounces of honey, twice a day. The running nearly ceased, and the medicine was changed for balsam of turpentine sulphur, which was continued another month. At this period, the horse appeared quite well; but in two months more the running appeared in a slight degree; and the horse died at the end of three years (in the course of which he worked occasionally at the infirmary) of a consumption, the common consequence of inveterate glanders.

The same method was again taken with others, but without success; and the professor acknowledges that he never succeeded but in one single instance, notwithstanding the number of his attempts.

On Inoculation for the Glanders, Contact, &c.

Two sound horses were placed by a glandered one, drinking at the same pail, and eating together. The first took the disease in thirty-four days, the other in six weeks. An aged horse, very lean, drank out of the same pail with a glandered one for two months; but being kept apart from the diseased horse, was not infected,

A horse in good condition was placed beside
another

another in the confirmed glanders, and caught them in forty-three days.

Three old horses, an ox, a sheep, and a dog, were inoculated with the virus in the neck; but without infecting them, or in the least degree impairing their health. This experiment was also tried on various horses, with the same effect. The saddles and coverings, which had been used to glandered horses, were put upon sound ones for a month together, during the heat of summer, without conveying the infection.

The infected matter, mixed with a little flour, and given to three horses, for the space of a week, communicated the disease to the youngest, at the end of a month. The two others sickened some time after.

By multiplying experiments only, we shall be able to attain to a certain method of cure of this disease; which still appears probable, notwithstanding so many attempts have failed. To conclude, thus much may be averred as a certainty, that the virus of the glanders has much more activity in the south than in the north; that its progress is more rapid in the ass and mule, than in the horse; but that these last are not so subject to receive it by infection, or contact.

SHORT OBSERVATIONS

ON THE

CHOLIC, OR GRIPES;

MORE PARTICULARLY

THE CHOLIC OF RUNNING-HORSES.

THE pains in the abdomen, which are called the cholic, or gripes, are occasioned by the irritation of the nervous fibres, the contraction of the capillary vessels distributed through the intestines, and by the obstruction produced in those vessels by the stagnation in the blood and humours. The causes which produce these effects are various, and may be distinguished as follows.

The particular causes of cholic are, crude and acrimonious substances in the stomach and intestines, occasioned by bad food, or weakness in the organs of digestion; over repletion; excrements dry, and too long retained; wind; cold water given while the animal is in great heat, and sweating; worms, the effects of some foreign body, such as hair-balls, bezoar-stones, &c.; and lastly, the injudicious use of purgatives.

All

All these causes produce the common symptoms of gripes, inflammation in the abdomen, with the other characteristic symptoms of the particular species of the disease.

Beside the usual symptoms of the common cholic, such as great agitation at lying down and rising, striking the ground, &c. there are certain particular ones, which may serve to guide the practitioner to a knowledge of the species of the disorder, and to direct him in the choice of his medicines.

If a horse be attacked by a cholic from overloading his stomach, beside the general symptoms, the breathing will become difficult and laborious, attended with great heaviness; he will groan, and repeatedly stretch out his head and neck.

The wind-cholic is easily distinguished; there will be a great tension of the belly, from the rarefaction of the air contained in the intestines, and frequent discharges of wind.

Cholics from worms are not equally painful or troublesome with other cholics; but the horse's appetite fails, he grows thinner, and is continually stretching his fore-legs out, as if desirous of lying on his belly.

The red cholic is of all others the most dangerous. It is so called on account of the extreme inflammation; and makes such rapid progress, that a mortification

mortification takes place in the abdomen in a few hours. It is highly necessary, therefore, to distinguish this species in the beginning, in order to administer the speediest assistance possible. A horse under this species of cholic, is more agitated than in any other. The common symptoms are more violent, and he discovers signs of pain if his flanks or belly are pressed; the conjunctive membrane of the eye appears much inflamed; the sphincter of the anus the same, and it appears of a bright red. This exalted degree of inflammation is always in some degree occasioned by the acrimony of the bile, and particularly by the immoderate use, and too large doses of purgatives. It is a known fact, that many medicines of this class act as internal blisters, irritating the nervous fibres of the stomach and intestines; and when operating with too much activity, they irritate also the extremities of the capillary blood-vessels, cause them to contract, and stop the passage of the blood. To this must be added their distension, causing the compression of the nervous system, whence arises the great pain which the animal suffers.

Such is the effect of violent purgatives; and I will venture to assert, *they are the principal causes of the cholics of race-horses.* I must here observe, that the question is not yet determined, whether purgatives ought to be at all used in veterinary medicine; that we are entirely ignorant of their relation

tion to the organization of the horse; that experience has shewn, that there are few cases in which these medicines appear to be required, and that the greatest prudence is at all times necessary in their use. In fact, when we consider the simplicity and uniformity of the horse's food, we can easily conceive, that he cannot have the same need of artificial evacuations as man, whose intemperance, in every respect, continually opposes the direct and uniform process of nature. What is whimsical enough, it is not the diseased horse only which is purged; but that also which is in perfect health; with the view, it seems, of making him lighter, and more speedy.

If we were to inquire into the cause of this conduct, I fear the answer given would not be upon the principles of sound and approved science; custom would be pleaded for reason; and they who have received this plea from their forefathers, will transmit it, equally unaccounted for, to their posterity. The greater part of those established principles, which have obtained in human medicine, have been determined by means of the relation subsisting between the patient and the physician: but veterinary medicine is entirely destitute of this resource; the patient cannot co-operate with the physician, by means of speech. If he had that faculty, he would probably, when affected with the red cholic, reproach his doctor with the consequence

sequence of imprudent purgation, and with increasing the violence of his tortures by ignorantly drenching him with cordials.

Cholics occasioned by cold water are the least dangerous; all that is necessary is, to bleed, keep the horse well covered, and give emollient clysters.

I shall say nothing of hepatic cholics, or of those produced by hair-balls, or other concretions, because such are incurable. I shall confine myself to the indication of some remedies for those cholics to which race-horses are peculiarly subject; such as proceed from the effervescence or acrimony of the bile, the use of violent purges, worms, &c.

In every cholic, it is necessary, in the first place, to bleed in proportion to the fever. Then give half a pint, or more, of castor oil; preparing immediately the following loosening and emollient drink. Boil in six quarts of rain, river, or any soft water, twenty minutes, and give a quart of the decoction every hour or two, the following herbs; mallows, mullein, or cows-lungs wort (*verbascum*), bears-breech (*acanthus*), pellitory, lettuce, all-good, or English mercury, and sorrel, of each a handful. The same may be also administered in a clyster, with the addition of cold-drawn linseed-oil. It is proper also to clear the large intestines.

This method ought to be observed in every cholic, except that which proceeds from indigestion; because in that case it would weaken the powers of
the

the stomach, and endanger the animal's life. Instead, therefore, of the above prescription, in that case, we must give a dose of theriaca, dissolved in a pint of good red wine; or three ounces of elixir proprietatis, mixed with the same quantity of geneva, adding a pint of warm strong beer; after which, trot the horse about smartly some time; and in two hours give him a gallon of warm water, but no meat of any kind, till an hour after his water. Old horses are more liable to cholics from indigestion, than young ones.

In windy cholics, give the elixir proprietatis, &c. as above, or the following: Take cummin and aniseed, of each an ounce and half; the root of master-wort (*imperatoria*) and angelica, of each a handful; boil them ten minutes, in three quarts of soft water; divide them into two doses, which give at the interval of an hour. Take also an head of garlic, or an onion, and a piece of soap, the size of an egg; make them up in a mortar to the form of a soft bolus, adding a pinch or two of pepper: insert this into the rectum as far as you can, and walk the horse half an hour; after which give a clyster, of one ounce of black soap, dissolved in a pint of warm water. If the pain continue, and the belly appear swelled and hard, draw a little blood.

If the cholic proceeds from worms, after the general remedies, recourse must be had to elixir proprietatis, geneva, and strong beer; and the next day,

day, to the use of bitters. Accordingly, a drink must be prepared of a decoction of wormwood, fern, lesser centaury, and gentian, and given in a dose of two quarts per day, fasting; to be continued till the worms are discovered coming away with the excrements.

In the red cholic, we must adhere rigidly to relaxents and anodynes; to drinks made with emollient herbs, as directed page 96; to linseed, oil of castor, and emollient clysters. Frequent bleeding may be indicated, and the English antimonial preparation, called *pulvis jacobus*, may be given every six hours. Warmth and a strict regimen are necessary; and the horse must be allowed nothing but nitrated water, made pretty nourishing with oat or barley meal.

If, nevertheless, the pain should continue violent, we may venture to give sixteen or twenty grains of opium, although there is certainly a risk in this remedy; for it is a nice point to determine the proper moment to use it, and to regulate the quantity. If the dose should be too weak, the cholic will be rendered more violent; on the contrary, if too powerful, it will hasten death. The veterinary physician alone is competent to decide on this case, from his experience. If the disease should resist all these remedies, and the following symptoms should appear, it generally proves mortal.

The horse remains on his legs as long as possible, being afraid to lie down; he makes several attempts before he can succeed; he soon rises again, from the excessive pain of a recumbent position. A profuse sweat comes over his whole body, with a general tremor; the breathing is quick, and interrupted; nostrils dilated; the pituitary membrane, and that of the mouth and gums, are of a livid colour; the lips cold; the yard frequently relaxed, and urine comes away in drops; a mortification is observed to take place, and death follows.

MEMOIRS

OF

PROFESSOR ST. BEL.

CHARLES VIAL DE ST. BEL was born at Lyons, in France, in the year 1753, and was grandson to the mayor of that city. He had, at a very early age, a great propensity to investigate the organization of animals; and at about sixteen became a pupil (at his own expence) to Monsieur Péan, of the Veterinary School. In this situation he applied himself so closely to his favourite study, that in a short time he gained the prize allotted to the best essay on the grease in horses, then a subject in discussion for the day.

He was soon after presented with an annuity of five hundred livres; and at the end of two years intense application, he obtained the appointment of lecturer and demonstrator to a class of sixteen pupils. The following year he attained the important situation of upper student, assistant surgeon, and one of the public demonstrators. A dreadful epizootic or contagious disorder breaking

out among the horses in many of the provinces of France, he was ordered to choose five students, and with them to make provincial visits, with intent to assist in stopping the ravages of this evil. The complete accomplishment of this mission brought him the most ample official testimonials of his skill from all quarters.

He was soon after sent for by the late king's express orders, and appointed one of the junior professorial assistants to the Royal Veterinary College at Paris, where he exerted himself with his usual industry and ability in his profession. But here his former good fortune began to forsake him; his skill and assiduity, the daily improvements he was making upon the old and absurd method of practice, together with his desire to rectify many æconomical abuses, created a jealousy of him in the mind of one of the professors, who was from that base motive determined to nip St. Bel in the bud.

The premeditated injustice of the professor was rendered so apparent by the contents of a letter, which were communicated in confidence to M. St. Bel, and the interest, as well as vindictive spirit, of his opponent were so obvious, that, as the safest course, he instantly gave in his resignation, and returned to Lyons, where he practised for some time as a veterinary surgeon and physician.

The death of the demonstrator of comparative anatomy to the Veterinary College at Montpel-

lier, made way for his reception there, as anatomical professor. He remained in that capacity at Montpellier five years; at the expiration of which he was sent for to Paris once more, by his patron, the Prince de Lambesc, with whom he remained three years; during which time he was appointed one of the equeries to the king, and chief of the manage of the Academy of Lyons. The latter appointment he held some years, to his very great gratification; as it afforded not only many opportunities of making farther progress in veterinary science, but also in the art of horsemanship, in which also he was a very eminent proficient. In the mean time, he made many efforts to be restored to his former situation in the College of Paris; but being disappointed in all, he at length determined, by the advice of M. Brousonet, to accomplish the design he had long meditated of visiting England; and having received letters of introduction to Sir Joseph Banks, Dr. Simmonds, Dr. Layard, of Greenwich, and other respectable characters, he found himself in this kingdom in June 1788; and in the following September published proposals for instituting a veterinary school; but without success.

During his first visit to this country, he married an English lady of great accomplishments, and returned with her to Paris; but perceiving the rapid approach of the revolution in France, he obtained

leave to return to England, under pretence of purchasing horses for the king's stud; and, fortunately for him, but more for this kingdom, which has reaped the benefit of his talents, he was safe in London whilst they were destroying the Bastille in Paris.

In the first commotion he lost his friend and guardian, Monsieur de Fleffelle, who fell a victim to the vengeance of the people; and by his death he lost his annuity of five hundred livres. He was shortly after not only deprived of all the offices he held, but also of his patrimonial estate of St. Bel, on account of his being deemed an emigrant, as not returning to France within the time prescribed.

He now determined to make England the place of his future residence; and in the following February, being requested by Mr. O'Kelly to dissect the body of that wonderful horse Eclipse, he displayed such great and unusual talents, as a veterinary anatomist, that it immediately gained him both great reputation, and many noble and zealous patrons. Among the most early and distinguished of these were the Right Honourable Earls Grosvenor and Morton.

In the year 1790 he again published proposals for founding a school to instruct pupils in veterinary medicine and surgery. His proposals were now noticed by the Agricultural Society of Odham,

ham, in Hampshire, which had lately entertained the idea of sending two young men into France, to study the veterinary art in the schools of that country. This measure they now gave up; and making M. St. Bel an honorary member of their society, they delegated a committee of gentlemen to confer with him respecting his plan, and on whatever might tend to establish a proper mode of treatment of cattle in this kingdom. This committee, being afterwards assembled at the Blenheim coffee-house, in London, came to the following resolution:

“That this meeting, highly sensible of the great benefit that must result to this kingdom from an institution to cultivate and teach veterinary medicine and surgery therein, and also of the plan proposed to them by M. St. Bel, (in the views and utility of which they fully coincide;) they therefore resolve, that a committee, consisting of four gentlemen, be requested to confer with him, and to consolidate, if possible, their intentions with his views.”

It was some time after farther resolved, by the gentlemen who composed this meeting, to detach themselves from the Odiham society, for reasons of local convenience; and to form an institution to be called The Veterinary College of London, and to appoint M. St. Bel to the professorship.

The number of subscribers daily increased; and a general meeting being called on the 8th of April, the following noblemen and gentlemen were chosen president, vice-presidents, and directors.

PRESIDENT.

His Grace the Duke of Northumberland.

VICE-PRESIDENTS.

Earl Grosvenor,	Sir T. C. Bunbury, Bart.
Earl Morton,	M. P.
Earl of Oxford,	Sir Will. Fordyce, Knt.
Lord Rivers,	and
Sir Geo. Baker, Bart.	John Hunter, Esq.

DIRECTORS.

Sir John Ingleby, Bart.	John Gretton, Esq.
M. P.	Dr. Hamilton,
Sir. H. P. St. John Mild-	Mr. Kennet,
may, Bart.	Dr. D. Mapleton,
G. M. Ayscough, Esq.	Granville Penn, Esq.
Mr. John Baynes,	Mr. William Stone,
Mr. J. Burgefs,	Edward Topham, Esq.
Rev. T. Burgefs,	Dr. Williams,
Rev. J. Cook,	and
Dr. Adair Crauford,	J. Wollaston, Esq.

TREASURERS.

Messrs. Ransom, Morland, and Hammersley.

In March, 1792, it was resolved, that a temporary stabling, for fifty horses, and a forge for shoeing, should be built at Pancras; and in April, at the request of the professor, a committee was formed of the following gentlemen, Sir George Baker, Dr. Crauford, Dr. Packwood, Mr. John Hunter, Mr. Cline, Mr. Horne, Mr. Vaux, Mr. Sheldon, and Mr. Peake, to examine M. St. Bel's qualifications in veterinary medicine and surgery. To these were joined Earl Morton, Lord Heathfield, and several other noblemen and gentlemen, for the purpose of examining the documents, and other proofs, of his character and conduct whilst resident in his own country. There appeared the most satisfactory proofs of his abilities and character.

The institution gained ground most rapidly, during the life and under the conduct of M. St. Bel; notwithstanding some considerable pecuniary embarrassments, the consequence of too extensive buildings, and an ill-judged system adopted by certain persons in the management of the funds. Impatient of every thing which tended to obstruct or suspend the success of the institution over which he presided, he felt much regret on the death or seces-

sion of some of it's friends and first founders; in consequence of which he struggled (with unremitting exertions) against many difficulties which unavoidably resulted. These efforts, joined to the anxieties he suffered respecting the fate of his native country, preyed upon a mind naturally full of sensibility, and impaired his constitution. Had he survived, many of the mortifications which he experienced would have ceased, and his wishes for the prosperity of the institution been gratified, by the aid he would have received from the exertions of those noblemen and gentlemen who have lately taken upon them to correct former errors, by substituting liberal œconomy to delusive speculation.

On Sunday August 4th, 1793, M. St. Bel was seized with a shivering fit, attended with head-ach, and great thirst; from which, after the interval of a few hours, he in some measure recovered: but suffering a relapse, and his disorder increasing, attended by faintings, and an alarming increase of the fever, he expired in a delirium on the 21st, notwithstanding the united efforts of those very eminent physicians Dr. Crauford and Dr. Scott.

Thus ended the life of Charles Vial de St. Bel; a man of distinguished honour and character, of unwearied industry, and first-rate abilities in his profession, whose death was a real loss to this country.

country. His remains were interred in the vault of the Savoy chapel, in the Strand, at the expence of the Veterinary College: by which, at a general meeting of the subscribers, an annuity of sixty pounds was generously granted to the widow; but which mark of kindness they have been since obliged to recall, from the present precarious income of the College.

HORSES AND SHOEING.

DESCRIPTION OF A HORSE.

VARIETIES OF HORSES.

The head is small as the proportion of the body; the eyes are small and placed near the ears; the ears are small and placed near the head; the neck is long and slender; the body is compact and well proportioned; the legs are strong and well jointed; the tail is long and slender; the whole is well proportioned and well adapted for the service of man.

APPENDIX.
 CONTAINING
VALUABLE EXTRACTS,
 FROM DIFFERENT AUTHORS OF NOTE,
 ON THE SUBJECT OF
HORSES AND SHOEING.

DESCRIPTION OF A HORSE,
 AND OF THE
VARIOUS BREEDS OF HORSES.

From Mr. Culley's celebrated Treatise on Live Stock.

DESCRIPTION OF A HORSE.

HIS head should be as small as the proportion of the animal will admit; his nostrils expanded, and muzzle fine; his eyes chearful, and prominent; his ears small, upright, and placed near together; his neck, rising out from between his shoulders with an easy tapering curve, must join gracefully to the head; his shoulders, being well thrown back, must also go into his neck (at what is called the points) unperceived, which perhaps facilitates

facilitates the going much more than the narrow shoulder;* the arm, or fore-thigh, should be muscular, and, tapering from the shoulder, meet with a fine, strait, finewy, bony leg; the hoof circular, and wide at the heel; his chest deep, and full at the girth; his loin, or fillets, broad and strait, and body round; his hips, or hooks, by no means wide, but quarters long, and tail set on, so as to be nearly in the same right line as his back; his thighs strong and muscular; his legs clean, and fine-boned; the leg-bones not round, but what is called lathy, or flat.

It is generally thought that we only have *two* original breeds of horses in this island; viz. the race or blood kind, and the black cart-breed; the rest have been supposed to be only variations from these two, by repeated crossings: and yet we are struck with surprize, when we consider the difference between the gigantic dray-horse, eighteen hands high, stalking upon the London pavements, and the small Highland, or Shetland poney, tripping over the mosses with a heavy load, though not more than nine hands, or thirty-six inches high, when at it's full growth. From the size and form of these ponies, we are inclined to believe, that there

* Whoever has observed a greyhound or a hare, will perceive how very wide they are made at the upper part of the shoulders, and there are few animals that move with so much ease and swiftness,

there are at least *three* distinct breeds of horses, viz. the racers, the heavy blacks, and the Shetland ponies.

The breed of horses, to whose improvement the greatest attention has been paid, is the racing, or blood kind, of which I shall decline saying any thing about; 1st, because I know very little concerning them; and, 2dly, because I think farmers ought to have little more to do with them, than occasionally putting a good mare to a strong well-proportioned blood-horse, by way of mixing a little blood amongst our chapmen or riding horses. Perhaps, for some particular uses, even a plough-horse may not be worse for having a little blood in him, as it is termed; and every man, who has been much accustomed to ride different breeds of horses, will soon discover, that a horse, which has a little blood in him, will usually perform a pleasanter day's work, than one that is not related to the racing breed; * and it is probably from this cause

that
 * Objections have been made by late writers to crossing of breeds of animals. I cannot help being of a different opinion with regard to horses; because, from many years experience, I have much reason to believe, that great improvements have been, and may be, made, by crossing, amongst the different breeds of horses; and I apprehend it is from these crosses, *properly made*, that this island has been long famous for such a noted and excellent breed of hunters and saddle-horses, insomuch that great numbers are yearly bought up for France, and other parts of the continent.

If

that the *Yorkshire draught horses*, and particularly the

CLEVELAND BAYS,

are so justly esteemed for their great exertions in the coal and lime season. The weights carried, distance travelled, and the time it is performed in for several weeks together, are certain proofs of their activity, strength, and hardiness.* Their colour is mostly bay; and their form is such, that the mares, put to a full-blood stallion, breed excellent hunters and saddle-horses; and to a half-blood horse, capital coaches, or carriage-horses.

The breed of saddle-horses is confined in a great measure to Yorkshire, Durham, and Northumberland; the East-Riding of Yorkshire has been long eminent in that line. The annual fairs held at North-

If crossing was not of use, why should the gentlemen of the turf have been at the trouble and expence of procuring stallions from Arabia, Turkey, &c.? The well-attested pedigrees of most of our racers generally terminate with a Burton-Barb, or Place's White Turk, &c. a proof that this practice has been attended with success.—But I am told, that few or no Arabian, or foreign stallions, have been imported of late years; the breeders of race-horses finding they can now make more improvement, by breeding from the best English horses: a certain proof of what attention will do, when joined with judgment and experience, and a laudable example to the breeders of other kinds of stock.

* Three horses carry a ton and a half of coals, travel sixty miles in twenty-four hours, without any other rest than two or three baits upon the road, and frequently perform this four times a week.

Northallerton, Howden, and York, exhibit the largest shows of these useful creatures. Perhaps it may be owing to this that Yorkshiremen are in general called *jockies*, or *knowing hands* in regard to horses; and indeed you will scarce meet with a farmer in that county, especially in the low part of it, who is not well skilled in them.

Since bay, and other light-going horses, have been preferred to the black breed for carriages, the Yorkshire breeders have gone so much upon these, that the old breed of riding or saddle-horses are much worn out. This is owing, perhaps, not only to the greater demand for the latter, but also to the coach-horses, being a stronger and larger breed; so that if they happen, from blemishes, not to answer for the harness, they suit for the plough or cart; while the saddle-horse, from the same misfortunes, is rendered in a great measure useless.

In most parts of the county of Suffolk we meet with a very useful breed of horses for the farmer, particularly in that part which is generally called High Suffolk, from which they have obtained the name of

SUFFOLK PUNCHES;

are in high estimation for ploughing and carting, and sold at greater prices than most other draught-horses of their size, for I remember seeing few above fifteen and a half hands high. It is probable

bable their merit consists more in constitutional hardiness than true shape, being in general a very plain-made horse; their colour mostly yellowish or sorrel, with a white ratch or blaze on their faces; the head large, ears wide, muzzle coarse, fore-end low, back long, but very strait, sides flat, shoulders too far forward, hind-quarters middling, but rather high about the hips, legs round and short in the pasterns, deep-bellied, and full in the flank; here, perhaps, lies much of the merit of these horses, for we know from observation and experience, that all deep-bellied horses carry their food long, and consequently are enabled to stand longer and harder day's works: hence the old Scotch proverb,

"A horse with a wame,

"And a mare with nane."

However, certain it is, that these horses do perform surprizing day's works. It is well known that the Suffolk and Norfolk farmers plough more land in a day, than any other people in the island; and these are the kind of horses every where used in those districts.*

THE

* A stallion and a few mares of this breed were introduced into Scotland by the Earl of Hopetoun; and it gave me great pleasure to be informed by his lordship's groom, that both they and their progeny answer extremely well. This worthy nobleman is never so happy as when he can introduce any thing that will benefit his tenants, neighbours, and country.

THE CLYDESDALE HORSES

are probably as good and useful a draught-horse as any we are possessed of; they are larger than the Suffolk Punches, being from fifteen to sixteen and an half hands high, strong, hardy, and remarkably true pullers, a restive horse being rarely found amongst them. In point of shape, they are in general plain-made about the head, sides, and hind-legs; they are mostly of a grey or brown colour, and are said to have been produced by a cross betwixt the mares of the common Scotch kind, and six coach-horses, all stallions, brought from Flanders by a Duke of Hamilton, about a hundred years since.

THE HEAVY BLACK HORSES

are almost universally bred through the midland counties, particularly Leicestershire, Warwickshire, Staffordshire, and Derbyshire. It is the universal custom in those districts for the farmers to use mares only for labour; these are all put to the horse, the male produce of which supply the army, London, and most of the south and western counties, with horses for their farming-teams. The largest go to the capital for dray-horses; the next supply the farmers in the southern counties, for their waggons, ploughs, &c. and the rest mount our cavalry, or are trained for carriages; while

while a few of the choicest are very properly preserved for stallions.

The vanity of many of the farmers of the south, in regard to their teams, is most extraordinary. I have, in Berkshire and that neighbourhood, several times met a narrow-wheeled waggon, with six stallions, one before another. The first horse, besides having on a huge bridle, covered with fringe and tassels, enough to half-load a common Yorkshire cart-horse, has six bells hung to it, the next five, and so on to the last, which has only one; and it is really diverting to see with what a conceited air the driver struts, and brandishes his long whip. A strange contrast this, with the poor Highlander carting home his peats with winter fuel, when frequently both horse and cart are not of the same value as the harness used to a Berkshire waggon-horse. The reader will not be surprized, when I assure him, that I have in Scotland many times seen a horse and cart conveying peats or turfs, when the whole apparatus contained neither iron, leather, nor hemp. The collar, or braham, was made of straw, the backband of plaited rushes, and the wheels of wood only, without bush of metal, or binding of iron.

One of the Earls of Huntingdon, returning from an embassy to the States-General, brought home with him a set of coach-horses of the black breed from the continent. Most of these being stallions,

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he with some difficulty prevailed upon his tenants, by the Trent-side, to put their mares to them; which cross answered so well, that the breed in that neighbourhood has been in the greatest repute ever since. This, many years afterwards, induced Mr. Bakewell and Mr. George Salisbury to cross the German ocean in search of horses and mares, to improve the English breed; and, after much labour and expence, they returned with half a dozen Dutch or Flanders mares. Mr. Bakewell says, that he never met with a man but he could have prevailed upon him to part with his stock for money, except in Holland; where he met with a Dutch boor, who would not sell one of his mares for any price he could offer; and any body who knows the above great breeder, will be sensible that he would not pinch for price, who gave above seventy guineas, when beginning business, for a cart-mare to breed from. Though these Dutch mares were of use in improving the Leicestershire black breed, yet it perhaps scarce answered the end proposed, because by this time the heavy unwieldy black horses were growing into disrepute; the nobility and gentry had begun to run bay horses in their carriages, and light horses were more used in the army; for drays and waggons the heavy blacks yet are, and probably long will be, a valuable breed. But the present system of farming requires horses of more mettle and activity, better adapted for travelling.

velling, and more capable of enduring fatigue, than those above-mentioned. It is long since I was told by the Cleveland farmers, that the black horses could not stand the work, nor go at the rate, of their own country horses; that whenever they were put past their pace, they greased, and frequently went blind. Yet it is in this industrious part of Yorkshire, and in Norfolk,* Suffolk, &c. that we must look for farming horses able to go through fatigue and hardship, able to walk at a pace that the others cannot, and able to work six days in every week in the year. It is a well-known fact, that these will, upon an average, wear as long again as the rough fleshy-legged black breed.

The best and hardiest horses for the draught I ever remember to have seen, proceeded from a cross between the country mares by the Tees' side, and a stallion brought from Holstein. They are not tall horses; rising only from about fourteen hands three inches, to fifteen hands three inches; exceedingly strong made, with short clean-boned legs, very firm carcases, and equal to any fatigue.

THE

* The Norfolk farmers could not sow from two to four hundred acres of turneps upon one farm, in proper time, in the same season, and plough from two to near three acres per day, with one pair of horses, if they had them not from a hardier and gimpler breed than those alluded to.

THE WELCH HORSES

are a very hardy breed, but rather small for the team; but where they are good goers, few or none can equal them for the road. None stand our turnpikes like them; and I well remember one, that I rode for many years, which, to the last, would have gone upon a pavement by choice, in preference to softer road.

THE SCOTCH HORSES,

like the Welch, are exceedingly hardy, but too small for the draught, except the Clydesdale horses, &c. taken notice of before. Those properly called Galloways are now rarely to be met with, from an inexcusable inattention to the breed, which is nearly lost. From their name, we may suppose, they originated from the county of Galloway; and it is generally said was owing to crossing with the Spanish horses, when a part of their *invincible* armada was ship-wrecked upon those rocky coasts. There is much probability in the account; but whether true or not, is not so material, as the loss of so valuable a breed of little horses is to be lamented.

GENERAL REMARKS.

In regard to horses intended for the draught or saddle, those I presume are the best, in general, that are of the truest proportion, in respect to bone,

carcase or form, and of a *middling* size. It may be admitted, that the great awkward lumbering horses, from sixteen hands to eighteen, may be the properest for drays or stage-waggon, &c. But we know that horses of this size are unfit for the saddle, the cart, or the plough; and where one is wanted for the former purposes, I suppose five are wanted for the latter. Perhaps from fourteen to sixteen hands are the most serviceable; or, to come nearer, I fancy we shall find the best from fourteen hands two inches, to fifteen hands two inches;* but perhaps it is not very easy to ascertain this, to any great degree of exactness, nor may it be absolutely necessary.

However, this I think we may venture to assert, that in those kinds of animals now under consideration, and perhaps in most others, there is a certain symmetry, or proportion of parts, which is best adapted to a particular size in each kind. All those of each kind that are above this size, we find disproportioned according to the size they attain to; and

* I am glad to find that the *middle-sized* horses are now become fashionable; or rather, that reason and common sense have at last prevailed over whim and caprice; because I have observed, that at all the horse-fairs where I have lately been, the dealers now prefer those horses which are from fifteen hands to fifteen and a half, even for the carriage; and it is amazing to me that this matter should have been so long of making its way. However, now it has taken place, and I am persuaded that it will not easily lose its hold again, for the reasons given in the text.

and in the degree that they are advanced beyond this line of perfection, we find them less active, less strong in proportion, and always less able to endure hardship or fatigue. We find all great horses tire sooner than middling-sized ones; they are slower in motion, they are more subject to disorders, and consequently wear sooner out.

ON SHOEING.

FROM OSMER.

IN many parts of the world, to this day, even on the most rocky ground, horses are accustomed to carry their riders unshod; and in this kingdom I have known several horses rode for a considerable time unshod, on the turnpike roads about London, without any injury done to their feet.

And I believe there are many horses that might travel their whole life-time unshod, on any road, if they were rasped round and short at the toe; because all feet, exposed to hard objects, become thereby more obdurate, if the sole be never pared; and some, by their particular form, depth, and strength, are enabled to resist them quite, and to support the weight without breaking. And here a very little reflection will teach us, whence the custom arose of shoeing horses in one part of the world, and not in another. In Asia there is no such custom as that of shoeing horses at all, because the feet acquire a very obdurate and firm texture from the dryness of the climate and the soil, and do really want no defence; but every rider has a rasp, to shorten his horse's foot, which

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would

would otherwise grow long and rude, and the crust would most certainly split. But the horse brought up on wet and moist land, will naturally have a wider and a weaker foot, it being of a cartilaginous nature, and therefore capable of contraction and expansion. Because then there always was a great difference in the texture of horses' feet, brought up on different soils, mankind (after certain periods of time, when the face of the earth became changed) found themselves obliged to add another defence, besides the natural one, to preserve the crust of such feet as were weak, and not so well able to support them against new and hard objects.

From the good of this practice, tried and discovered on particular kinds of feet, it is no wonder that the custom of putting shoes on all kinds of feet became general in some countries.

Our ancestors, the original shoers, proposed nothing more, I dare say, in their first efforts, than to preserve the crust from breaking away, and thought themselves happy they had skill enough so to do. The moderns, also, are wisely content with this in the racing way.

But, in process of time, the fertility of invention, and the vanity of mankind, have produced a variety of methods, almost all which have been productive of lameness; and I am thoroughly convinced, from observation and experience, that nineteen

teen lame horses of every twenty in this kingdom, are lame of the artist; which is owing to the form of the shoe, his ignorance of the design of nature, and mal-treatment of the foot; every part of which is made for some use or purpose, though he does not happen to know it.

But, waving all these modern artists know, or do not know, I suppose it will be universally assented to, that whatever method of shoeing approaches nearest to the law of nature, such is likely to be the most perfect method; and as the feet of different horses differ from each other, so, if we would arrive at any perfection in this art, the human reason must be employed, in discovering and ascertaining wherein their difference consists, that each may be treated according to it's nature; and yet, with respect to each, and all, some general rules may be still allowed.

For the sake of those who may be unacquainted with horses' feet, and for their instruction, I shall describe such parts only of the foot, for the present, as offer themselves to our view, and come under our cognizance, as the immediate and principal objects of care, when intended to be shod.

These are the outer sole, the crust which like a wall surrounds it, the frog, the bars, one on each side, and the spongy skin-like substance which covers the hinder and cellular part of the foot, and is continued to the heel of the horse.

The frog, together with the bars, occupying the hinder part of the foot, is designed by nature to distend and keep it open ; which, when cut away, suffer the heels, the quarters, and the coronary ring, to become contracted ; whereby another lameness is produced, which shall be treated of in it's proper place.

The bar is that part situated between the heel, the frog, and the quarter on each side, and is not to be scooped out according to the general custom, for the reason last mentioned ; because, together with the frog, it's use is to keep open the hinder part of the foot, as well as to defend it.

The spongy skin-like substance is not to be cut away till it becomes raggy, because it is the expansion of the skin round the heel ; it's use being to unite more firmly the foot and it's contents, and to keep the cellular part of the heel from growing rigid. It also surrounds the coronary ring, and may be observed to peel and dry away as it descends on the hoof.

These are general rules to be observed, with respect to every kind of foot.

But because La Fosse has said the sole and frog should never be pared, many of our countrymen, mistaking his meaning, have fallen into another extreme, and so have not pared the foot at all.— Yet it is necessary, that the crust of all horses which are shod, should be pared more or less, according

according to it's different degree of strength. But no general method can be laid down in this respect, because the nature of feet differ greatly from each other, by which alone the artist is to be guided.

And to prove this necessity of paring the crust, it is to be observed, that the superficies of the crust of every foot, whereon the shoe rests, becomes rotten in a few weeks; so that if a new shoe be set upon an unsound foundation, it will not stand firm or long.—The crust also, in such case, will shell or break away.

Now where the foot is deep and hollow, the crust is generally thick and strong: this cannot be pared down too low, (so as not to fall into the quick,) because the strength of the crust alone will occasion such a compression on the interior parts of the foot, as to produce a lameness, which will be shewn in it's proper place.

In all broad fleshy feet, the crust is thin, and should therefore suffer the least possible loss. On such feet the rasp alone is generally sufficient to make the bottom plain, and produce a sound foundation, without the use of the desperate buttress.

And thus each kind of foot is to be treated according to it's different degree of strength or weakness.

The superficies of the foot round the outside, now made plain and smooth, the shoe is to be made quite flat, of an equal thickness all round the out-

side, and open and most narrow backwards, at the extremities of the heels, for the generality of horses; those whose frogs are diseased, either from natural or incidental causes, requiring the shoe to be wider backwards; and to prevent this flat shoe from pressing on the sole of the horse, the outer part thereof is to be made thickest, and the inside gradually thinner.

In such a shoe, the frog is admitted to touch the ground, the necessity of which has been already shewn: add to this, the horse stands more firmly on the ground, having the same points of support as in a natural state.

Now the modern artist uses little difference in the treatment of any kind of foot; but with a strong arm, and a sharp weapon, carries all before him; and will take more from a weak-footed horse at one paring, than nature can furnish again in some months, whereby such are rendered lame.

If a strong-footed horse, with narrow and contracted heels, be brought before him, such meets with treatment yet more severe; the bar is scooped out, the frog trimmed, and the sole drawn as thin as possible, even to the quick, under pretence of giving him ease; because, he says, he is hot-footed, or foundered; by which treatment the horse is rendered more lame than he was before, as I shall immediately shew.

In the interior part of the foot, (which few or
none

none of these artists have ever examined, at least to little purpose,) there is a broad cartilage annexed to each superior end, or corner of the foot-bone; there is also a small bone, called the nut-bone, placed transversely in the foot, between the bone thereof and the coronary bone; the ends of which are articulated to the inner sides of the foot-bone, which ends are also cartilaginous; and from the situation and concern of these in all motion, it is necessary they should be of a cartilaginous and pliant, or yielding nature.

Now when this same foundered foot, as it is called, is robbed of those parts which were designed to keep it open, the heels and the coronary ring become more contracted than they were before; by which means these cartilages of the foot-bone are more compressed. All the membranes and tendinous expansions of the foot are compressed and inflamed, and the cartilaginous ends of the nut-bone, together with the ligaments, are squeezed as in a vice.

And it is to be observed, that whenever the heels of the horse are deep or narrow, and there is a stricture round the coronary ring, such feet are generally more or less lame, after some use, and that merely from the compression above named. The truth of which will be more readily conceived, by examining the interior structure of the foot.

But the modern artists, not content with ruining and destroying the work of Providence, seem resolved that all their operations shall be of a piece, and in every thing act by contraries. And to prove this, I shall demonstrate, that the shoe commonly made use of is contrary to sense and reason, as well as to the natural tread of the foot.

It is to be understood, that no horse can go, if the shoe rests upon the sole; and to avoid this evil, the modern shoe must be formed, and stand concave; because the modern shoe is made thinnest on the outside, and thickest on the inside.

Mark now the inconveniences arising from the unequal surface of such a shoe. The horse, having fewer points of support, is more liable to blunder, to strain the tendons, injure the cartilages and ligaments, break the bones of the foot, and to dislocate some of the joints of the fore-part.

The weight of the horse bears chiefly on the inner side of this shoe, which is the highest part; so that the nails at the heel, when the horse comes to act, must break, or give way, or tear the crust. Hereby the shoe gets somewhat loose, the finer sand insinuates itself between the foot and the shoe heel, and the horse is, according to our phrase, gravelled; perhaps gets a corn, with which he is lame for life, no cure being supposed to be had for this evil.

In this kind of shoe, though the frog be not
pared,

pared, it will be removed to such a distance from the ground, that it cannot be admitted to touch it; by which intervention of the shoe the flexor tendon of the foot loses it's support, as much as if the frog was actually pared.

Further, the heel of the horse is corroded and eaten away, and the crust more liable to be broken; nevertheless, these men are obstinate and weak enough to affirm the contrary, and give it as a reason for making the outside of the shoe thinnest, not perceiving the consequence of such an unequal pressure on the crust.

Having now proved that variety of lameness is produced by a wrong method of shoeing, I shall leave what has been said to the consideration of the reader; the truth of which observation and experience will make manifest.

Let the shoe on every horse stand wider at the points of the heels than the foot itself; otherwise, as the foot grows in length, the heel of the shoe in a short time gets within the heel of the horse; which pressure often breaks the crust, produces a temporary lameness, and perhaps a corn.

Let every kind of foot be kept as short at the toe as possible, so as not to affect the quick; for by a long toe the foot becomes thin and weak, the heels low, and the flexor tendons of the leg are strained: the shortness of the toe helps also to widen narrow heels.

In all thin weak-footed horses, the rasp should be laid on the toe in such a manner as to render it as thick as may be; by which means the whole foot becomes gradually thicker, higher, and stronger.

In all feet, whose texture is very strong, the rasp may be laid obliquely on the fore-part of the foot, towards the toe, and the toe itself thinned; whereby the compression on the parts is rendered somewhat less, by diminishing the strength of the hoof or crust.

But this rasp is to be used with discretion, lest the crust, being too thin, and not able to support the weight of the horse, a sand-crack ensues; which frequently happens from too free or unskilful use of this tool, and from the natural rigid texture of the coronet.

The heel of the shoe, on all strong and narrow-heeled horses, should be made strait at the extreme points; the form of the shoe in some measure helping to distend the heel of the horse: for the same reason, the shoe on no horse should be continued farther than the point of the heel.

It has been said already, that neither frog nor sole should ever be pared; nevertheless, it must be understood, that it is impossible to pare the crust, without taking away some of the adjacent sole; and it is also requisite, in order to obtain a smooth and even

even surface so far as the breadth of the shoe reaches, and no farther.

The frog also will become ragged, and loose pieces will occasionally separate from the body thereof, perhaps in one foot, and not in the other. When this happens, it should be cut away with a knife, to prevent the gravel lodging therein; but if it be left to the artist to do, he will be sure to take away more of it at one time than will grow again in many weeks. The inferior point of the same, towards the toe, should also be taken down, in some kinds of feet, where it grows high.

La Fosse has given us a caution against the use of cramps, or what in England is called corking; that is, turning up the shoe at the points of the heels.

He says, that the frog being hereby removed to a great distance from the ground, the tendon will be inevitably ruptured; but this is only true in part. In the summer time, when the ground is dry and hard, I think this effect would frequently happen, especially if the horse was rode hard: but in the winter time, when the ground is wet, this cannot happen in a flat shoe; because the corking of the shoe-heels is then buried in the ground, so that the frog is still admitted to touch the ground, and to rest thereon: and it is necessary that all sportsmen, who hunt on hilly or slippery countries, should have the shoe-heels turned up in the winter time, especially the hinder ones,

for the security of their persons; and the fore-shoes also, if they like it, without danger of laming the horse in the tendons, for the reason above given.

This method of treating the foot, and such a kind of shoe as has been described, I have used many years; and, to the best of my remembrance, have not had a horse lame since, except when pricked by the artist; and it is a matter of the greatest astonishment to me, how any other form of a shoe could ever come into general use. Yet no particular method of shoeing whatsoever can take place; and this will happen from the different nature, form, and texture of horses' feet.

But the prejudices of mankind, on all these occasions, may be worth remarking. One man invents a new piece of machinery, which he finds to be very useful in many respects. His pride and partiality would fain have it extend to all purposes. In this light he recommends it to his neighbour, who tries it; and having found it not answer his particular purpose, he falls into the other extreme, and declares it to be good for nothing. Hence that which may contain many virtues, when used with judgment, becomes neglected, and is perhaps totally thrown aside; and hence the perfection of some arts is less extensive.

Now this flat shoe is not to be made with a smooth surface, after the French manner, but channelled

nelled round, or what is called fullered, after the English manner; by which the horse is better prevented from sliding about, and the heads of the nails are less liable to be broken off; both which inconveniences attend the shoe whose surface is smooth.

But so ignorant are these our artists, (who do not want to be taught, or in other words, know every thing,) that not one in twenty of them can make these flat shoes, though a pattern lies before them, for which reason they generally dislike and condemn them.

It has hitherto been thought a difficult matter to prevent horses from cutting; nevertheless, it is generally very easy.

Whoever will be at the trouble of examining the feet of such horses as are accustomed to cut themselves, will at all times, and in all horses, find the cause to be the same; namely, to turning out their toes.

From hence also the necessity of boots, and bolsters, and bandages, round the fetlocks of half the horses that are trained at Newmarket, to prevent knocking their joints together.

Now the colt standing to graze with an outstretched foot, which is no uncommon posture, rests chiefly on the inside of it, by which means that part is worn lowest. This is disregarded; and, by a habit of standing, the toe grows outward, and he becomes

becomes crooked from the fetlock-joint downward.

It may perhaps be said that this habit of turning out the toe is entailed by nature; but whether it be natural or acquired, the true cause of it is still the same in all horses, and depends on nothing else but the inside heel being lower than the outside.

And to prove this doctrine, as soon as you perceive the colt's toe turning out, pare down the outside of the foot as much as you can; repeat it as often as the foot will allow, and let the inside alone; so will he grow strait on his legs and feet, and never cut or knock himself about when he comes into use.

This method will also prevent grown horses from cutting, if the crust of the feet be strong enough to bear a sufficient loss; if not, the substance of the iron may be made thicker for the inside of the foot, from the heel to the toe, than it is for the outside; and where it is practicable, and shall appear necessary, both these methods may be used, and both will assist for the purpose. I have rode a horse treated in this manner several years, and have found but little inconvenience to his going, or to his feet; much depending, in this case, on the goodness thereof.

Such of the dealers who are masters of their business, use this kind of shoe to raise the inside of the

the

the horse's foot, and make him point, as they call it, or stand strait on his feet; and the chapman, who thinks he has bought a strait-legged nag, is much surprized at the alteration he perceives in him, the first time he is shod in other shoes.

The crust should also be suffered to grow fullest on the inside of the foot, and the outer part thereof be rasped away as far as can be spared.

Nevertheless, the modern shoers, acting in all things by contraries, rasp away as much as they can from the inner part of the feet.

Who now does not see the horrid barbarities of rowelling, blistering, nay, even boring the shoulders with a red-hot iron; (under pretence of curing a lameness therein,) committed on this most noble animal, by the obstinacy, pride, or folly of mankind?

Yet I would not be understood to mean, that there is no such thing as a lameness in the shoulder, because the muscles and ligaments thereof are liable to be strained, as well as other muscular and ligamentous parts.

But that no man may ever after be mistaken herein, I will lay down one unerring rule, whereby he may distinguish the reality of this disorder, without consulting the farrier at all; which is, that the horse, in this circumstance, always drags his toe upon the ground; for it is impossible that the horse can extend his foot to go on, without
extending

extending also the muscles of the shoulder; which act of extension he, to avoid pain, or from inability, does not chuse to have performed.

It appears also, from the nature of the articulation of the humeral-bone with the scapula, or blade-bone, that such is capable of dislocation, either forward or backward; and there are many farriers in this kingdom, who pretend to have cured this dislocation, by the means of a patten-shoe put on the foot of the lame leg; the truth of which they would attest on oath, perhaps seal with their blood.

But a patten-shoe, in this case, must of necessity do harm instead of good; because it will force the head of the humeral-bone farther from it's articulation with the scapula.

When any other kind of foot is become shelly and broken, the crust thin, or the heels low, turn the horse out to graze without shoes, rasp the foot short at the toe, keep it constantly rasped as it grows; such foot will in a short time flourish again, and become just as it was in a natural state, when he was a colt.

And here let it be remembered, that it is much to the advantage of all colts to keep their toes short: mares also, in foal, will by this means carry their load much easier; discretion being had thereunto, as in paring the human nail; which, if cut too close, will cause a temporary forenefs.

Never-

Nevertheless no harm, except an immediate soreness, which will soon go off, attends cutting the toe of the horse even to the quick, as shall be immediately shewn.

If you have a horse whose foot is fleshy, whose sole is higher than the crust, take him and cut him round at the toe, till the blood follows, and stands in drops; turn him to grass bare-footed, he will in a short time make a new shoot at the coronet, the weak crust will become by degrees more solid, and the thin sole more obdurate; the heels will get high and strong; and behold, where you could not before well find a place to drive a nail, the whole foot is now rendered tough and firm, will bear hammering like a piece of board, will carry as flat a shoe as any other kind of foot, and will continue so to do, if it be never pared or stopped; provided always the interior parts of the foot have not been injured by disease or accident.

Hence it is manifest enough, that all horses, when turned to grass for a time, should have their shoes taken off, and their toes kept rasped round and short.

The feet of stallions are also best without shoes, whether they are kept at house or abroad; the crust at the bottom of the foot being occasionally pared down, according to the depth, strength, and growth thereof.

Let

Let any man keep one foot of a stallion so managed, and the other in a shoe, he will soon find a wide difference between the two feet.

Hence it will follow, that all breeders of horses should be well versed in the difference of feet; the laws of nature seldom varying in this or other respects.

And here occurs to me the wrong judgment of the grooms in the indiscriminate custom of stopping and greasing all sorts of feet; for greasing and stopping such feet whose crust is weak, and whose sole is spongy, will render them more weak and more spongy: such feet cannot be kept too dry at the bottom.

Nevertheless, it is necessary to anoint the coronary ring of such with some cooling oil, ointment, or mucilaginous composition, to keep it pliant, and free from contraction and rigidity. Urine will also render the crust of weak feet tough, and help to consolidate the sole.

Now the farriers, when the cause of lameness in the fore-part of the horse is not visible to them, do most frequently assert that it is in the shoulder, and by chance that it is in the foot.

When they allow this last to be the case, their method of acting is first to blister, and then to fire upon the coronary ring all round, at various intervals of space.

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But blistering inflames, and firing contracts the coronary ring, which is, or should be, of a pliant nature, and renders it more rigid; the effects of which seem to want no annotations.

For strong and deep, or narrow feet, keeping at grass, or loose in a house, and short shoes, are very beneficial; and most horses with such feet, especially on training-ground, would do full as well, perhaps better, if their fore-feet were never shod at all, but were kept rasped short at the toe, and their crust at the bottom was occasionally pared down.

For lameness arising from a sudden false step, which, if I rightly understand La Fosse, he calls a compression, and which he accounts for by the action of the coronary bone pushing the nut-bone against the tendon, and compressing the same as between an anvil and a hammer, he has proposed two remedies to remove the inflammation caused by it, and its bad consequences: one is to draw the outer sole; the other is to pare it till it becomes thin and flexible, to bleed in the foot, and to use emollient poultices and fomentations round the foot and the coronet. Three-fourths of these cases, he says, are cured by such methods, without drawing the sole; and I beg leave to add, that I believe all might be, if they were immediately taken in hand, and the crust of hoof was also pared down as low as possible, and rendered thin on every part; because the interior

inflamed

inflamed parts will be more relieved by external applications, when the thickness and stricture of the crust are removed, than when the outer sole only is pared away. But the great objection I have to drawing the sole, besides the cruelty of the operation, is, that nineteen horses in twenty (here in England, I mean) have always been more or less lame afterwards, when used again; and that from a contraction of the hoof occasioned by such operation.

And here I beg leave to add one observation more on the folly and absurdity of our English shoers, with respect to the treatment of as-footed horses, and which has been in part spoken of before. Now horses with such feet being generally lame, it is a constant custom with these men to pare away all the outer sole of such horses as much as possible, and to render their feet hollow. By this they propose to remove the pressure or binding of the outer sole upon the inner, and so to cure his lameness, which, by the bye, I never yet saw give so much as a temporary relief: but if it did, it would still be a bad custom; for the pressure or binding of one sole upon the other, is in this case owing to the depth and strength, and contexture of the crust or hoof first compressing the outer sole; so then, by paring the outer sole, which helps to keep the crust or hoof expanded and open, such crust or hoof is rendered deeper, stronger,

stronger, and narrower also, than it was before; by which addition of strength, depth, and contraction, the outer sole, as it grows again, is also more strictly embraced and compressed than it was before: hence the pressure or binding on the inner sole is increased, and that still more every time such outer sole is pared away, till the horse at length becomes so lame that he cannot well carry himself.

Now the proper way of treating such feet is, to pare down the crust as much as possible without falling into the quick, to keep the frog high, and the outer sole full and even with the crust, and to relax, soften, and expand the hoof by all methods.

La Fosse directs us how to distinguish a strong compression (as he calls it) by a swelling in the coronet, and the great pain occasioned by pushing the thumb against it; two instances of which he gives us that were not cured, even when the sole was drawn. Now I very much question, but these swellings at the coronet described by him were partial dislocations of the coronary bone; and though I do not mean to detract in the least from his merit and skill in the knowledge of the parts belonging to the horse, yet I am the more inclined to think him mistaken in this particular, because he lays it down as a rule, that the coronary bone will admit of no dislocation, being so securely

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tied round by ligaments, tendons, cartilages, and the construction of the hoof; whereas in fact all bones which help to compose a joint, and that are capable of motion, are capable also of dislocation; and that this coronary bone is capable of motion, will be easily proved by the use of a muscle which is inserted into it; and the foot and pastern-bone have each of them also a muscle inserted into them. Now the tendons of these three muscles may occasionally, perhaps, become united from hard labour, so as to appear one tendon; and yet, in fact, what is commonly called the great tendon of the fore-leg has three distinct muscles, with three insertions into these three bones before named.

Where the cartilages are ossified, there is no cure; for an ankylosis there is no cure; where the bones of the foot are enlarged or wasted, there is no cure.

To remove the inflammation of the glands, and to prevent an induration and enlargement of the ligamentous parts, and the integuments of the fetlock-joint, the consequence of repeated violence, it is a good custom for all sportsmen to cause these joints of the horse, after a day's hunting, to be well fomented with flannels dipped in warm water, or a decoction of some emollient herbs; and some warm flannel cloths, or rollers, should be moderately bound thereon, for the ensuing night.

For want of this, or some such method, lameness

ness (as was before said) often happens to this joint.

To cure this, the farrier blisters and fires upon the joint; by either of which methods, applied whilst the parts are inflamed, the inflammation thereof is most certainly increased; from hence a callosity of those parts is most likely to be entailed for ever, instances enough of which we may see every day; and they are as contradictory to the disorder, as endeavouring to extinguish fire by pouring spirits of wine thereon. For a lameness of the tendon he uses the same methods.

Now all tendons are enveloped in a sheath, whereon are situate many small glands, that are forced by the action of the tendons to pour forth their mucus, which serves as oil to lubricate the same, and to keep them from growing dry and rigid, as otherwise they would do, like any other cord or string.

Between this sheath and the skin of the leg, where nothing intervenes but a thin membrane, what hand can determine betwixt the boundaries of these bodies, whose appearance, by the heat of the iron, is made distinguishable to the eye?

Now mark the event of firing.

If the fire reaches no further than the skin, little advantage can accrue to the tendon; but the fibres of the skin will become contracted, and less pliant. If the fire reaches the membrane, or sheath

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of the tendon, some of it's glands are destroyed, and the tendon becomes more or less rigid. If the tendon be burnt, the consequence will be still worse, and in either case the velocity of motion will be impeded; no man, I believe, remembering a race-horse once fired, equal to what he was before. Firing then will act as a bandage; and though it is sure to spoil the racer, it may, on some occasions, be found beneficial to horses used for other purposes.

In both these cases, where the skin or ligaments surrounding the fetlock-joint, or a tendon is inflamed or enlarged by repeated violence, or exercise continued on a weak or inflamed part, the following method will be used.

Turn your horse loose in some open building, bleed him plentifully, and give him cooling salts; let the injured parts be fomented twice a day with the decoction of some emollient herbs boiled in water, such as white lily roots, mallows, elder leaves and flowers, bay leaves, and the like. The parts, when dry, are to be filled with some cooling ointment, and some of the fomentation is to be thickened with oatmeal, to the consistence of a poultice, and kept thereon.

When the induration and tension is gone off, a cataplasm may be applied twice a day, composed of common salt and the white of eggs, mixed with a little vinegar and oatmeal, and the parts

parts bathed with cold vinegar, mixed with a little oil, (heat evaporating the subtle spirit thereof;) but if these remedies do not avail, why then the use of blisters, after proper and previous evacuations, may perhaps be the means of effecting a cure, by unloading the vessels contiguous to the parts affected. On all these occasions the horse should be turned to grass, and indulged with proper rest, that the diseased parts may recover their former fineness, tone, and strength.

With respect to rest, the farrier has a great advantage by blistering and firing; because the leg is so inflamed hereby, that it is impossible to ride the horse for a considerable time after the operation: so that if he happens to get sound, it is generally thought to be the effect of blistering and firing; which ought in reality to be imputed to the rest he has had.

But when any other method has been used for this purpose, and the part looks fair to the eye, the rider mounts, his horse is lame again the first day, and the groom wisely concludes he will never stand sound without being fired.

Now let every man, who has ever strained the tendons of his wrist or ankle, reflect on the pain he has suffered from the least motion of the parts, and how long a time has been required before he has been able to bear the extension of such tendons,

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even when all appearances have been fair. Will not the case be such with the horse?

And here I cannot help censuring the jockey, who, having his horse matched, and in his exercise the tendons are so inflamed that he cannot be allowed to gallop, yet constantly takes him out morning and evening, to give him walking exercise.

But this walking exercise can contribute little towards keeping him in wind, or making him fit for the race, yet still helps to fatigue the tendon; whereas, if the horse was kept quiet, and proper applications applied to the injured part, it is very possible he might recover soon enough for his purpose. Therefore, when it is thought improper for him to gallop, it must be much better for him to lie quite still; and the most proper applications I know of in this case, are to bathe the parts with cold vinegar, to rub in some cooling ointment when it is dry, and to renew the cataplasm of salt twice a day; salt, externally used, being the greatest discutient I am acquainted with.

The use of ardent spirits do harm to tendinous parts when there is any tension; because, if then applied, they render the fibres rigid; but when the tension is gone off, such may help to brace and strengthen the parts. A high-heeled shoe will also

also be of use in this case; as it will help, in some measure, to keep the tendon relaxed.

Now I beg leave to repeat what has been in part said already; namely, that all lameness in the tendons, of a draught, road, or running horse, happens generally from the unequal surface of our modern concave shoe; and from robbing that tendon, which is continued to the bottom of the foot, of it's proper point of support, by paring the frog. Hunters, indeed, may occasionally get a lameness in the tendons, from various injuries and violence received in their different kinds of work.

ON SHOEING.

FROM MR. CLARKE,

Farrier to the King for Scotland.

IN preparing the foot for the shoe, the frog, the sole, and the bars, or binders, are pared so much, that the blood frequently appears. The shoe, by it's form, (being thick on the inside of the rim, and thin upon the outside,) must of consequence be made concave or hollow on that side which is placed immediately next the foot, in order to prevent it's resting upon the sole. The shoes are generally of an immoderate weight and length, and every means is used to prevent the frog from resting upon the ground, by making the shoe-heels thick, broad, and strong, or raising cramps or caulkers on them.

From this form of the shoe, and from this method of treating the hoof, the frog is raised to a considerable height above the ground, the heels are deprived of that substance which was provided by nature to keep the crust extended at a proper wideness, and the foot is fixed as it were in a mould.

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By the pressure from the weight of the body, and resistance from the outer edges of the shoe, the heels are forced together, and retain that shape impressed upon them, which it is impossible ever afterwards to remove; hence a contraction of the heels, and of course lameness. But farther,

The heels, as has been observed, being forced together, the crust presses upon the processes of the coffin, and extremities of the nut-bone; the frog is confined, and raised so far from the ground, that it cannot have that support upon it which it ought to have; the circulation of the blood is impeded, and a wasting of the frog, and frequently of the whole foot, ensues.

Hence proceed all those diseases of the feet known by the names of foundered, hoof-bound, narrow heels, running thrushes, corns, high soles, &c.

I have likewise frequently observed, from this compression of the internal parts of the foot, a swelling of the legs immediately above the hoof, attended with great pain and inflammation, with a discharge of thin, ichorous, foetid matter; from which symptoms, it is often concluded, that the horse is in a bad habit of body, (or what is termed a grease falling down,) and must therefore undergo a course of medicine, &c.

The bad effects of this practice are still more obvious upon the external parts of the hoof. The

crust, toward the toe, being the only part of the hoof free from compression, enjoys a free circulation of that fluid necessary for it's nourishment, and grows broader and longer; from which extraordinary length of toe, the horse stumbles in his going, and cuts his legs; at the same time, the smaller particles of sand insinuate themselves between the shoe and the hoof, at the heels, which grinds the latter away, and thereby produces lameness. All this is entirely owing to the great spring the heels of the horse must unavoidably have upon the heels of a shoe made in this form.

This concave shoe, in time, wears thin at the toe, and, yielding to the pressure made upon it, is forced wider, and, of consequence, breaks off all that part of the crust on the outside of the nails. Instances of this kind daily occur, insomuch that there hardly remains crust sufficient to fix a shoe upon.

It is generally thought, that the broader a shoe is, and the more it covers the sole and frog, a horse will travel the better: but, as has been formerly remarked, the broader a shoe is of this form, it must be made the more concave; and, of consequence, the contracting power upon the heels must be the greater. It is likewise to be observed, that, by using strong broad-rimmed concave shoes in the summer season, when the weather is hot, and the roads very dry and hard, if a
horse

horse is obliged to ride fast, the shoes, by repeated strokes (or friction) against the ground, acquire a great degree of heat, which is communicated to the internal parts of the foot, and, together with the contraction upon the heels, occasioned by the form of the shoe, must certainly cause exquisite pain. This is frequently succeeded by a violent inflammation in the internal parts of the hoof, and is the cause of that disease in the feet, so fatal to the very best of our horses, commonly termed a *founder*. This is also the reason why horses, after a journey, or a hard ride, are observed to shift their feet so frequently, and to lie down much.

If we attend further to the convex surface of this shoe, and the convexity of the pavement upon which horses walk, it will then be evident, that it is impossible for them to keep their feet from slipping, especially upon declivities of streets.

It is also a common practice, especially in this place, to turn up the heels of the shoes into what is called cramps or caukers; by which means the weight of the horse is confined to a very narrow surface, viz. the inner round edge of the shoe rim, and the points or caukers of each heel, the latter of which soon wear round and blunt; besides, they for the most part are made by far too thick and long. The consequence is, that it throws the weight of the body forward upon the toes, and is apt to make the horse slip and stumble. To this

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cause we must likewise ascribe the frequent and sudden lameness horses are subject to in the legs, by twisting and straining the ligaments of the joints, tendons, the bending of the knees forward, and that stiffness and contraction of the tendons which is observed in those horses who have been accustomed to caukers on their shoes.

I do not affirm that caukers are always hurtful, and ought to be laid aside; on the contrary, I grant that they, or some such like contrivance, are extremely necessary, and may be used with advantage upon flat shoes, where the ground is slippery; but they should be made thinner and sharper than those commonly used, so as to sink into the ground, otherwise they will rather be hurtful, than of any advantage.

The Chinese are said to account a small foot an ornament in their women; and for that purpose, when young, their feet are confined in small shoes. This, no doubt, produces the desired effect; but the main intention is to make them more sedentary, that, not being able to walk but with difficulty, they are obliged to remain in their apartments.*

This practice, however, very much resembles our manner of shoeing horses; for, if we looked upon it as an advantage to them to have long feet, with narrow low heels, and supposing we observed no inconvenience to attend it, or bad consequence

* President de Goguet, vol. i. p. 360.

to follow from it, we could not possibly use a more effectual means to bring it about, than by following the method already described.

In shoeing a horse, therefore, we should in this, as in every other case, study to follow nature: and certainly that shoe which is made of such a form as to resemble, as near as possible, the natural tread and shape of the foot, must be preferable to any other.

But it is extremely difficult to lay down fixed rules, with respect to the proper method to be observed in treating the hoofs of different horses, especially those who have been accustomed to concave shoes. It is equally difficult to lay down any certain rule for determining the precise form to be given to their shoes. This will be obvious to every judicious practitioner, from the various constructions of their feet, from disease, and from other causes that may occur; so that a great deal must depend upon the discretion and judgment of the operator, in proportioning the shoe to the foot, by imitating the natural tread, to prevent the hoof from contracting a bad shape.

ON SHOEING.

FROM LORD PEMBROKE.

PHYNIC and a butteris, (says the noble author,) in well-informed hands, would not be fatal; but in the manner we are now provided with farriers, they must be quite banished. Whoever at present lets his farrier, groom, or coachman, in consideration of his having swept dung out of the stables for a greater or less number of years, ever mention any thing more than water-gruel, a clyster, or a little bleeding, and that too very seldom; or pretend to talk of the nature of feet, of the seat of lamenesses, sicknesses, or their cures; may be certain to find himself very shortly quite on foot, and fondly arms an absurd and inveterate enemy against his own interest. It is incredible what tricking knaves most stable-people are, and what daring attempts they will make to gain an ascendant over their masters, in order to have their own foolish projects complied with. In shoeing, for example, I have more than once known, that, for the sake of establishing their own ridiculous and pernicious system, when their masters have differed from it, they have, on purpose, lamed horses,

horses, and imputed the fault to the shoes; after having in vain tried, by every sort of invention and lies, to discredit the use of them. How can the method of such people be commendable, whose arguments, as well as practice, are void of common sense? If your horse's foot be bad and brittle, they advise you to cover it with a very heavy shoe, the consequence of which proceeding is evident: for how should the foot, which before could scarce carry itself, be able afterwards to carry such an additional weight, which is stuck on moreover with a multitude of nails, the holes of which tear and weaken the hoof? If the foot is cut or hurt, one doctor says, load it, by way of cover, with all you can: his conceited opponent as wisely counsels you to let the horse walk bare upon the sore. The only system all these simpletons seem to agree in, is to shoe, in general, with excessive heavy and clumsy ill-shaped shoes, and very many nails, to the total destruction of the foot. The cramps they annex tend to destroy the bullet; and the shoes, made in the shape of a walnut-shell, prevent the horse's walking upon the firm basis which God has given him for that end, and thereby oblige him to stumble and fall. They totally pare away also, and lay bare the inside of the animal's foot with their detestable butteris, and afterwards put on very long shoes, whereby the foot is

hindered from having any pressure at all upon the heels; which pressure otherwise might still, perchance, notwithstanding their dreadful cutting, keep the heels properly open, and the foot in good order. The frog should never be cut out; but as it will sometimes become ragged, it must be cleaned every now and then, and the ragged pieces cut off with a knife. In one kind of foot, indeed, a considerable cutting away must be allowed of, but not of the frog:—I mean that very high feet must be cut down to a proper height; because, if they were not, the frog, though not cut, would still be so far above the ground, as not to have any bearing on it; whereby the great tendon must inevitably be damaged, and consequently the horse would gollame.

The weight of shoes must greatly, wholly indeed, depend on the quality and hardness of the iron. If the iron be very good, it will not bend; and, in this case, the shoes cannot possibly be made too light: care, however, must be taken that they be of a thickness so as not to bend; for bending would force out the nails, and ruin the hoof. That part of the shoe, which is next the horse's heel, must be narrower than any other, that stones may be thereby prevented from getting under it, and sticking there, which otherwise would be the case; because the iron, when it advances inwardly beyond

beyond the bearing of the foot, forms a cavity, wherein stones being lodged would remain, and, by pressing against the foot, lame the horse. The part of the shoe which the horse walks upon should be quite flat, and the inside of it likewise; only just space enough being left next the foot to put in a picker, (which ought to be used every time the horse comes into the stable, and often on marches,) and also to prevent the shoes pressing upon the sole. Four nails on each side hold better than a greater number, and keep the hoof in a far better state. The toe of the horse must be cut short, and nearly square, (the angles only just rounded off,) nor must any nails be driven there: this method prevents much stumbling; especially in descents; and serves, by throwing nourishment to the heels, to strengthen them. On them the horse should in some measure walk, and the shoe be made of a proper length accordingly: by this means narrow heels are prevented, and many other good effects produced.

In wet, spongy, and soft ground, where the foot sinks in, the pressure upon the heels is of course greater than on hard ground; and so indeed it should be upon all accounts. The hinder feet must be treated in the same manner as the fore ones, and the shoes the same. Except in hilly and slippery countries, they may not improperly be turned up a little behind; but turning up

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the fore-shoes is, I am convinced, of no service, and is certain ruin to the fore-legs, especially to the bullets. In descending hills, cramps are apt to throw horses down, by stopping the fore-legs out of their proper basis and natural bearing, when the hinder ones are rapidly pressed, which unavoidably must be the case, and, consequently, cannot but push the horse upon his nose. With them, on a plain surface, a horse's foot is always thrown forward on the toe, out of it's proper bearing, which is very liable to make the horse stumble. The notion of their utility in going up hills is a false one. In ascending, the toe is the first part of the foot which bears on, and takes hold of the ground, whether the horse draws or carries; and consequently the business is done before the part where the cramps are comes to the ground. Ice-nails are preferable to any thing to prevent slipping, as also to help horses up hill; the most forward ones taking hold of the ground early, considerably before the heels touch the ground. They must be so made, as to be, when driven in, scarce half an inch above the shoe, and also have four sides, ending at the top in a point. They are of great service to prevent slipping, on all kinds of places; and, by means of them, an horse is not thrown out of his proper basis. They must be made of very good iron; if they are not, the heads of them will be perpetually breaking off, which

will not happen if the iron is good, and the nails are well made. By putting a fresh one every now and then on each side of the shoe, all wished-for ends are obtained, and no bad effects ensue. I know that I am fighting against a very strong, though a very unreasonable prejudice. Let this be tried only, and compared fairly, on experience, with others, and not immediately laid aside, if, in slippery weather, a horse thus shod should now and then slip. In some weather, and on some ground, any horse, any how shod, may sometimes chance to fall. There is, unluckily, no absolute specific against accidental falling, in any shoes yet discovered. I have tried all methods, and find the above-mentioned one the nearest to perfection; this sort of shoe, and nails, when well made, and fixed properly, being the firmest basis, and best hold, I ever knew. I do not recommend ice-nails at all times. In certain weather, (the greatest part of the year indeed,) the ground is in a condition which does not require any.

From the race-horse to the cart-horse, the same system of shoeing should be observed; the size, thickness, and weight of them only should differ. The shoe of a race-horse must, of course, be lighter than that of a saddle-horse; that of a saddle-horse, lighter than that of a coach or bât-horse; and these last more so than a cart, waggon, or artillery horse. At present, all shoes, in general,

are too *heavy*; if the iron is good, shoes need not be so thick as they are now generally made.

The utmost severity ought to be inflicted upon all those who clap shoes on hot. This unpardonable laziness of farriers, in making feet thus fit shoes, instead of shoes fitting feet, dries up the hoofs, and utterly destroys them.

The shoes in England, at present, that are contrived with the most sense, are what they call plates for the race-horses at Newmarket. I do not say that they are perfect, but they are nearer the truth than any others I know; nor are they substantial enough for common use, though sufficiently so for the turf.

'Tis strange that there should be so many ridiculous and absurd methods of shoeing, when it is so manifest that a small share of common sense, with a moment's reflection upon the structure of a horse's foot, cannot but suggest the proper one.

FINIS.

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